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SPLENECTOMY IN THE ANEMIAS

AND OTHER BLOOD STATES ASSOCIATED WITH ENLARGEMENT OF SPLEEN AND LIVER *

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The spleen has a mysterious function. In the embryo it is the manufacturer of white blood cells. This function apparently ceases before birth. After birth the spleen renovates the red blood cells. When diseased, it reverts to its primitive function, and lawlessly produces an enormous proliferation of the embryonic white cells, or a wholesale destruction of the red corpuscles, with great increase in its own size. The spleen is believed to produce a hemolytic ferment which has been interestingly studied by McNee, to exercise a phagocytic function (Kölliker, 1847), and to perform the act of mechanical straining of worn out blood cells especially, as well as bacteria, protozoa and certain toxic substances. It directs a considerable portion of the blood to the liver for further destruction of noxa and final metabolism of nutritive materials. It is well known that it enlarges during digestion and contracts after that function is completed. While a ductless gland, it does not appear to have an important internal secretion, but is powerfully acted on by the products of the suprarenal gland, contracting markedly under its administration. This is probably due to its blood and pulp composition.

In its duty as a filter it sometimes becomes overwhelmed with the infectious agent of general diseases, such as typhoid fever, malaria, syphilis and tuberculosis. Splenic enlargement so resulting may require operation under exceptional circumstances when it is unyielding to ordinary management.

A large spleen often results from toxic causes. It is commonly associated with anemia and with a secondary cirrhosis of the liver. Variations in this association results in such syndromes as Banti's, Gaucher's and von Jaksch's. Splenic anemia is perhaps the most frequent pathologic process participated in by the spleen, except those enlargements associated with such blood dyscrasias as leukemia and pernicious anemia. Both have a considerable incidence and an almost invariable fatality.

Splenic anemia is presumably due to the filtration from the blood of certain toxic substances by the spleen which, when passed on to the liver, produce cirrhosis. There are many varieties, but all have an enlargement of the spleen and some grade of anemia. The enlargement seems to confer an abnormal potentiality for the destruction of the red blood cells.

Splenic anemia is a primary disease of the spleen of unknown origin. There are progressive enlargement, attacks of anemia, a tendency to hemorrhage, and in the Banti stage a secondary cirrhosis of the liver, with jaundice and ascites. Following splenectomy there is usually complete recovery showing that the spleen itself, if not initiating, is the essential seat of the disease. The restoration seems permanent. One patient was well after the lapse of fifteen years (Türk).

All splenic tumors, with chronic anemia, might be broadly, though not accurately, included under splenic anemia; practically all such cases have been cured by removal of the spleen. Miller speaks of the impossibility of explaining why in splenic anemia there is anemia without icterus, in Hanot's cirrhosis there is icterus without anemia, and in hemolytic icterus there are both icterus and anemia, and why all are so closely related.

Splenectomy has been performed in only a few instances of the adult form of splenic anemia, occurring in the first decade of life. Giffin[1] reports one case in which operation was performed by Balfour and only five others collected from the literature. I have reported elsewhere an additional case of the adult form of splenic anemia (Banti's disease) in a boy, aged 8, cured by splenectomy.[2]

It was inaugurated with severe gastric hemorrhage, reducing the hemoglobin to 11 per cent. and red cells to less than a million, followed in a few weeks by splenomegaly and ascites. After preliminary transfusion of whole blood the splenectomy was safely concluded with entire and complete recovery.

Gaucher's spleen is often associated with a huge liver. The process begins in infancy or childhood, is extremely chronic, and is characterized by the peculiar large pale round cells with vacuolated protoplasm. If operation is undertaken before endotheliomatous growths appear secondarily in the liver and the other organs, cures have been cited by Herzog and Mayo.

Von Jaksch's disease, the splenic anemia of infancy, might be possibly considered as a form of adult splenic anemia, in spite of the high leukocytosis and lymphocytosis, as these, according to Giffin, may be the result of a peculiar reaction of the infant's blood. Splenectomy is indicated in the graver forms that are not amenable to medical treatment. There are four operative cases in the literature up to the end of 1915.[1] All the patients survived and were either cured entirely or greatly improved.

* Chairman's address, read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Giffin, H. Z.: Splenectomy for Splenic Anemia in Childhood for the Splenic Anemia of Infancy, Ann. Surg., 1915, **62**, 676.
2. Haggard, W. D.: Tennessee State Med. Jour., to be published.

What relation does the rather constant enlargement of the spleen bear to hepatic cirrhosis? The beneficial results in the few cases in which splenectomy has been performed might seem to point to a certain relationship that may give an indication for the operation in certain well studied cases.

Gastric hemorrhage, of unknown origin, instead of always arising from ulcer, has been estimated by Balfour[3] to be the result of splenic anemia in many cases. He reports one strikingly suggestive case in which several fruitless operations on the stomach had been performed for grave recurrent gastric hemorrhage; the patient was cured by splenectomy after operation had revealed an enlarged spleen.

Pernicious anemia has been characterized as cancer of the red blood tissue, as leukemia has been described as cancer of the white blood tissue in its riotous profusion and reckless proliferation. It is evidently of infectious origin. The idiopathic variety was a fabrication; it is so uniformly fatal under all forms of treatment that Eppinger suggested splenectomy on account of the decreased hemolysis following the removal of the spleen. He thinks the hemolysis occurs in the spleen pulp sinuses, the blood being diverted there on account of thickening of the obliterated central artery. Although no permanent and definite cure has been made, many patients have been greatly benefited, and it is not impossible that if the operation could be undertaken in the early stage of the disease, before bone-marrow exhaustion occurs, some permanent cures may be effected. A persistently low polymorphonuclear percentage would indicate bone-marrow exhaustion; whereas, a high percentage of reticulated cells with perhaps the Jolly bodies point to increased activity of the bone-marrow. Splenectomy is the greatest stimulant to bone-marrow, but it can exert this stimulation but once. Repeated transfusion before and after operation is the next best therapeutic measure. As the spleen is only an aggregation of lymph glands, and as in addition to the bone-marrow there are many isolated glands around the peritoneal cavity, so-called hemolymph glands, it is not improbable that the explanation of the continued blood destruction after splenectomy in pernicious anemia may be due to the continued and vicarious activity of these glands which have been stimulated to this pernicious destruction of blood cells. After splenectomy the spleen is seen to be crowded with phagocytes and red cells in various stages of destruction, although there is no particular cellular pathologic condition in the spleen. The trouble is rather a perverted chemistry or physiology.

The grave anemias, although presumably of splenic origin, may not only be fathered by the streptococcus, but by the plasmodium, tubercle bacillus, protozoa and other parasites. As has been pertinently said, "If the spleen is the mother of pernicious anemia there must be many fathers."

Schneider[4] has ingeniously demonstrated that these blood-derived pigments can be obtained from the duodenum by tubage and the quantity estimated by spectroscopic analysis.

In the hemolytic type of anemia, the index of these pigments is increased, and hence these patients are more suitable for splenectomy. He calls this the "hematopoietic-hemolytic index." It appears that in secondary anemia, carcinoma, chronic sepsis, etc., due to enteric bleeding, this H-H index is low. If blood destruction is great, as evidenced by a high index in the duodenal contents and yet the blood picture is good on account of the ability of the bone marrow to keep up a fair blood supply, splenectomy is followed by a considerable gain, indicating that removal of the spleen does prevent a blood destruction and perhaps allow the bone marrow to supply the deficiency. This is confirmed by a striking reduction in the duodenal blood-derived values after splenectomy. Schneider[5] concludes that:

> Splenectomy apparently, immediately and permanently reduces the excessive blood-derived pigments of pathologic hemolysis to a normal level. There is no proof that a recurrence of a pernicious blood and clinical picture after splenectomy is due to a reestablishment of excessive blood destruction.

Regarding advanced cases of pernicious anemia as an ultimate exhaustion of the bone marrow, although originally a hemolytic process, an estimation of the H-H index of Schneider would allow us to select the favorable cases for splenectomy, as evidenced by the high index of this group. Since some cases of secondary anemia from alimentary hemorrhages imitate closely a pernicious anemia, this test will definitely rule out that group by showing a normal or low index of the pigments.

Percy[6] thus epitomizes the treatment of pernicious anemia:

> Multiple massive transfusion of whole blood, eradication of all local foci of infection present, laparotomy for the removal of the spleen, and the other tissues that show evidence of chronic infection is necessary.

The best results seem to have been obtained in persons below 50 who have had the disease less than a year in whom the blood picture is fairly good and the spleen is moderately enlarged. It has been pretty well determined even by the most ardent advocates that mental, cerebral and spinal cord symptoms are distinct contraindications to splenectomy, and it should be added that the presence of an aplastic bone marrow is equally forbidding. If the hemoglobin is below 35 per cent. and the red blood cells less than 1,500,000, operation should not be undertaken. When the anemia is marked, three or four transfusions should be done as a preliminary.

In the Mayo clinic there were thirty-nine splenectomies for pernicious anemia with three deaths, 7.7 per cent. In the last twenty-nine cases there were no deaths. Krumbhaar,[7] after a critical study of 153 cases in which splenectomy was performed for pernicious anemia, concludes that:

> On account of the improvement that follows splenectomy, it would appear to be not only justifiable, but in many cases an advisable procedure; but in no case should a cure be promised or the operation undertaken except under the most favorable conditions.

Hemolytic jaundice is the most heartening of all the conditions of blood dyscrasia that are benefited or cured by splenectomy. The jaundice begins to pale

3. Balfour, D. C.: Splenectomy for Repeated Gastro-Intestinal Hemorrhages, Am. Surg., 1916, **64**.

4. Schneider, J. P.: The Hematopoietic-Hemolytic Index: A Determination Helpful in the Differential Diagnosis of Types of Pernicious Anemia Amenable to Cure by Splenectomy, Journal-Lancet, 1917, **37**, No. 4.

5. Schneider, J. P.: Further Quantitative Study of Duodenal Blood-Derived Pigments, Arch. Int. Med., January, 1917, p. 156.

6. Percy: Surg., Gynec. and Obst., May, 1917, p. 554.

7. Krumbhaar, E. B.: Late Results of Splenectomy in Pernicious Anemia: A Statistical and Critical Review, THE JOURNAL A. M. A., Sept. 2, 1916, p. 723.

almost immediately, and in a few weeks the icterus of many years has faded away forever. It seems like a feat of legerdemain, and it was looked on as incurable until 1911, in which year Micheli performed the first operation.

The disease is not uncommon: Rovsing[8] says that fifty cases have been observed in Denmark. The acquired form, which usually makes its appearance in the second decade, is much more fatal than the familial, which may last indefinitely with little or no inconvenience, other than the skin discoloration. These patients are more icteric than sick; with the acquired form they are more sick than icteric, according to Chaufford. In addition to the splenomegaly there are anemia and increase in reticulated cells, showing a partial exhaustion of the hemopoietic system. There is a marked fragility of the red cells, by the test of Chaufford and Widal, according to the Eppinger technic.[9] Their mere fragility causes their easier hemolysis in the spleen. May it not be, as suggested by Meltzer, that, as the blood flows through the irregular alveolar structure of the spleen, the red cells rendered fragile by some unknown agency, encountering the jarring ridges and sustaining innumerable shocks, are broken up mechanically and called to give up some of their hemoglobin? With the jaundice there is no brachycardia, itching or petechiae. There is bile in the stools, bile in the blood, but no bile in the urine; whereas urobilin is present in the urine but not in the blood. Bilirubin is found in the blood serum, and can be measured.[10]

The pigmented portion of the hemoglobin molecule when split up by the spleen is thrown off by the liver as bilirubin. In the intestine this is changed into urobilin, and as such is passed out by the kidneys. When the pigment escapes extrusion by the liver, deposition in the tissues causes jaundice, just as in pernicious anemia the lemon tinge comes from the pigment of slaughtered red cells.

May not certain cases of so-called Hanot's hypertrophic cirrhosis in young life that lasts a number of years be in reality acquired hemolytic jaundice, as suggested by Mayo? The obtaining of the H-H index and the test for the fragility of the red cells would be helpful. While true Hanot's cirrhosis is rare, chronic, and generally regarded as incurable, splenectomy may be indicated.

In forty-eight cases of splenectomy, reports of which were collected by Elliott and Kanavel,[9] for hemolytic jaundice, there were only two deaths, a mortality of 4.1 per cent. These patients should not be operated on during an exacerbation characterized by pain, tenderness and enlargement over the liver and spleen, with increase in jaundice and temperature. This is the typical acholuric crisis, and is often misinterpreted as malaria.

Splenomyelogenous leukemia, as ordinarily encountered, is notoriously inappropriate for splenectomy, but when the full limit of improvement after Roentgen or radium treatment has been obtained and before recrudescence occurs, Mayo thinks splenectomy may be considered in selected cases.

Likewise syphilitic spleen, although quite uniformly amenable to intensive antisyphilitic treatment, may be wholly intractable to the most active and persistent measures. Four such cases are reported from the Rochester clinic, and were promptly cured by splenectomy and continuation of treatment that was formerly unavailing. There are also reported from the same clinic 135 splenectomies with twelve deaths, 8.5 per cent., for various maladies of the spleen, with abnormal blood states and splenomegaly.[11] Attention is drawn to the fact that the spleen must be enlarged many times to be really palpable. In this connection it must be remembered that splenic enlargements always grow forward; they never produce fulness in the loin.

All chronically enlarged spleens which are symptom-producing should be brought into court — the court of exhaustive investigation — to show cause why they should not be removed. We are in danger of rather indiscriminate operation on this organ by those who may be impressed with the glamour of this somewhat impressive operation, but who are not properly equipped to study each case in the most elaborate and exacting way.

8. Rovsing: Tr. XI. North Surg. Cong., July, 1916.
9. Elliott and Kanavel: Surg., Gynec. and Obst., 1915, **21**, 26.
10. Hooper and Whipple: Am. Jour. Physiol., 1916, **40**, 332.

*11. Miller, J. L.: Splenectomy in Splenic Anemia, Hemolytic Icterus and Hanot's Cirrhosis, THE JOURNAL A. M. A., Sept. 2, 1916, p. 727.

SANITATION IN THE TRENCHES

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From professional friends in the medical centers who are most in touch with the younger physicians I learn that there is a great demand among the latter for medicomilitary literature concerning the present war. Naturally, planning to take up at an early date the duties of what they are beginning to realize is practically a specialty to which our medical colleges have heretofore given no attention, as intelligent professional men and as patriotic citizens they are eager for information that will enable them competently to fill the military offices to which they shortly expect appointment, and to "do their bit," however small, in an adequate and self-satisfying way.

At present, unfortunately, there is a great lack of literature along these lines. Physicians abroad, both at home and afield, are all more or less engaged in the work of the war and have had little time to write; and what has been written, owing to evident difficulties in the transportation of mail, is not always received on this side of the water. Fortunately for our present purposes, this matter is not vital. I have been informed by competent observers from the western front that the German sanitary methods and results are far behind those of the British and French; indeed, there seems to be some evidence that the medical department of the German army, owing probably to the use of antiquated administrative methods, practically broke down in the early part of the war.

Realizing this literary dearth, the medical section of the Advisory Committee of National Defense has patriotically decided to have published at as early a date as practicable a series of pocket handbooks designed for easy use in the field, and treating of those subjects that are most essential in this connection. The series will consist of English manuals, revised and up to date, French translations, and short monographs on special subjects, the latter written mostly by some of our own physicians and surgeons who have already seen service abroad. This plan, when effectuated, will

no doubt take care of one of the most important phases of the matter of medical preparedness for the war.

Pending the publication of these books, which will probably require several months for completion, the want can be partially filled by short journal articles on some of the more important subjects. Of these the most urgent is that of camp sanitation. I regret extremely that none of our many competent army sanitarians has taken up this task. It may perhaps be a case of "angels fearing to tread," owing to the dry nature of the subject and the great difficulty of making its treatment interesting. However, at the risk of subjecting myself to this criticism, I have felt constrained, mainly because of the reticence of more able pens, to enter the breach. Elsewhere[1] I have dealt briefly with what may be called the general principles of military hygiene, which apply in this war just as forcibly as in previous ones. This paper is simply an effort to bring the matter up to date by a short description of the particular methods that the peculiar environment abroad has developed in modern trench warfare. I have been greatly aided in this design by having had the good fortune to hear the interesting lectures of Colonel Goodwin of the British mission to the United States covering this subject, and by the recent issue from the press of a revised American edition of Major Lelean's "Sanitation in War."[2] Anything that may prove of value in this paper is really due to these two authors. In fact, I make no claim whatever to originality, unless, indeed, it may be originality to endeavor to arouse interest in a very dry subject or to try to pick the essentials of the subject out of a large mass of details. This would be better, indeed, than originality for our present purposes. It would be a big start toward the solution of a problem that has always caused us serious trouble in our previous wars, leading to scandals and investigating committees, and "the tumult and the shouting" of popular disapproval and newspaper notoriety. In spite of much natural optimism I have, however, little hope of accomplishing the end aimed at, for are there not already in the air the mutterings of approaching storms, and have not the dreaded criticisms in fact already begun? For my part, I merely feel the "call" to expound the doctrine as it has been revealed to me.

The French ideas on field sanitation have been ably and interestingly presented by Andre Tournade in "La pratique de l'hygiène en campagne." (1916). However, I do not find in this work what I consider any special improvements on the British methods herein outlined.

Major Vedder of the Army Medical Corps has prepared a little handbook entitled "Sanitation for Medical Officers" that will be published at an early date.[3] This with Lelean's excellent book, and, for reference purposes, the last (second) edition of Havard's "Military Hygiene," will cover, in my opinion, all the literature on sanitation necessary for the physician in the field in the coming war. Short orders and circulars on special subjects are issued from time to time by the War Department, and these will serve to keep one entirely up to date along these lines.

To take up the consideration of our subject: In the area behind the front there has been no particular departure from our old established sanitary methods;

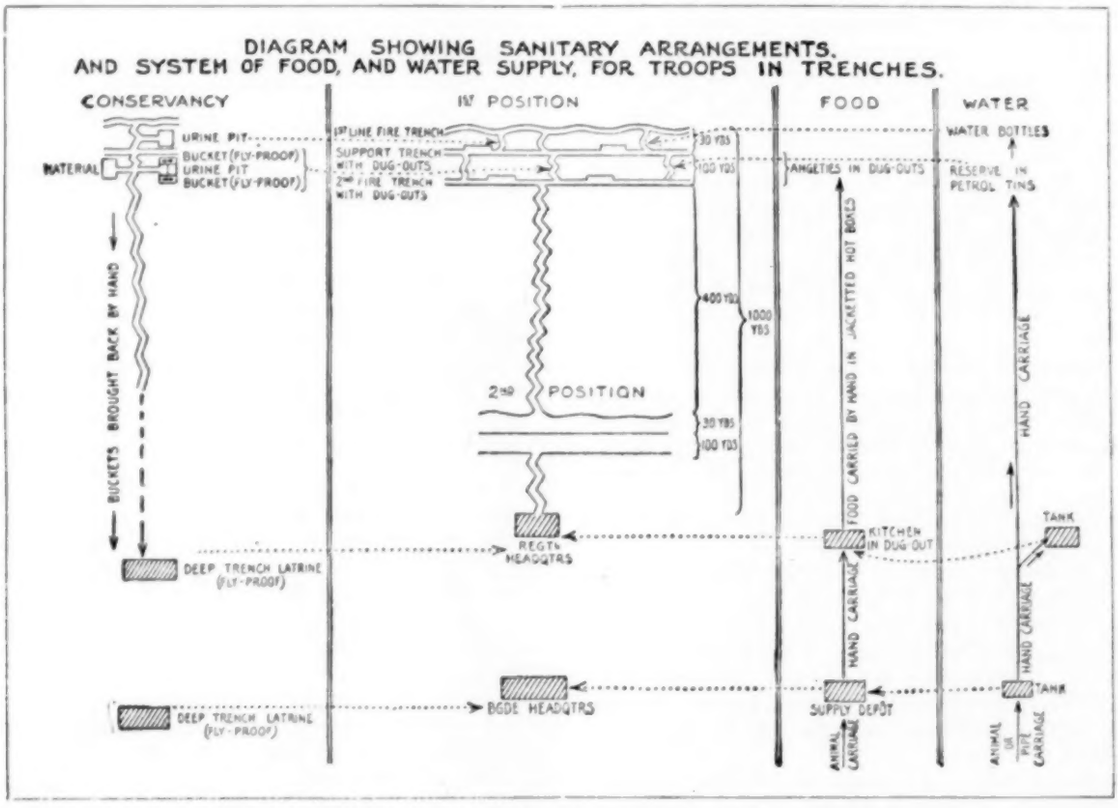


Fig. 1.—Plan of arrangements for food, water, and the handling of excreta.

1. McCulloch, C. C.: Med. Rec., New York, June 2, 1917.

2. I am indebted to the extreme courtesy of Messrs. P. Blakiston's Son & Co. of Philadelphia for permission to use the illustrations accompanying this article.

3. Under the authority of the Surgeon General of the Army, and of the Council of National Defense.

the general principles, indeed, remain the same in all war areas. In general hospitals and at the base, these being usually situated in towns of some size, systems of water carriage and modern sewage disposal make our sanitary labors light. Fixed incinerators for general refuse are easily established and maintained.

In case no such systems exist, they are installed as necessary. The simple range style of water closet, which was used with excellent results for the workmen on the Panama canal, offers an easy solution of this particular problem, and the same arrangement is applicable to permanent camps. This device is, in effect, an iron trough, with water and sewer connections, that flushes itself automatically at regular intervals. Its chief advantage is in its economical installation and operation as compared with the customary water closet fixtures.

In semipermanent and large standing camps, when it is impracticable to install sewerage systems, it has been found by experience in our army that the deep trench latrine system with fly-proof box covers, in connection with improvised incinerators for refuse, if adequately administered, can be made to meet the sanitary situation satisfactorily. The urine soakage pit, described below, makes a desirable addition to this plan. Another improvement, in connection with latrines, is the use of a barrel, conveniently situated, containing cresol solution for hand disinfection, and provided with a conspicuous label directing that the men wash their hands after using the sink.

This seems a good place to state that the only really safe and effective way of administering these field latrines is to have a sentry posted over them whose duty it is to look out for the details of their operation, particularly with reference to the fly-proofing.

In the European system of billeting troops in villages, it is customary to make the best of existing facilities. The most common arrangement is that which we found in Cuba in 1898; that is, cess pits under the individual houses, which are pumped out from time to time by some form of suction apparatus.

It goes without saying that all our field methods, and in particular those concerned with conservancy, require for the accomplishment of real results the strictest sanitary supervision and inspection.

Experience has shown that at the front proper certain modifications of our usual conservancy plans are advisable, which are in one way a reversion to earlier and discarded methods, although in others they conform much better to the local conditions. The essential thing is that with care we get results, the "acid test" of the success of any kind of campaign.

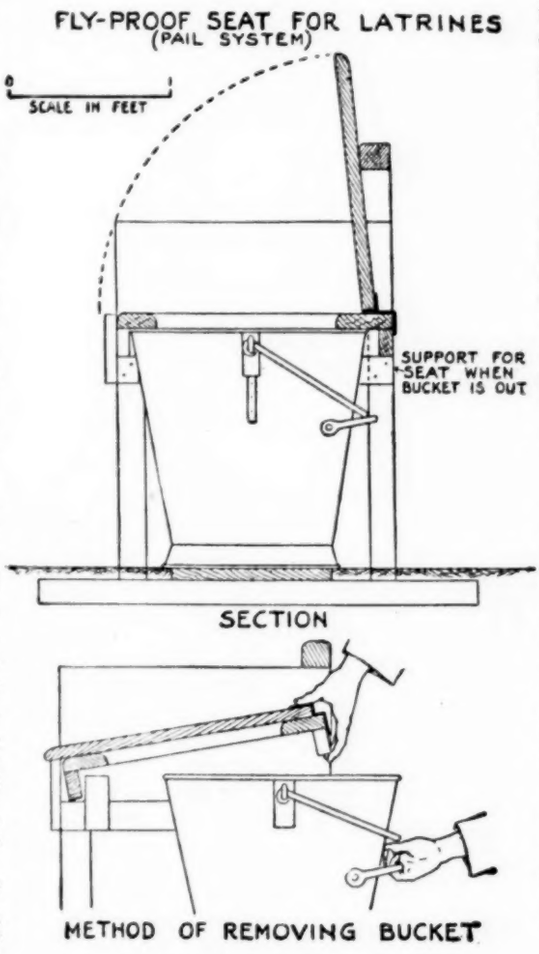


Fig. 2.—Fly-proof container for latrine pail.

The vital things in military sanitation are (1) food, (2) water, (3) conservancy, (4) personal habits, and (5) the prevention of special diseases.

I. THE FOOD SUPPLY

One of the most noticeable developments of the European war in this connection has been the increased vogue of the traveling kitchen or field cooker in the zone of advance. According to Lelean, "that now in use is of the 'heat retaining' type which gives en route no smoke which might draw the enemy's fire. It consists of ovens and hot-jacketed boilers arranged around a central furnace, all contained in the body of the wagon. The limber contains hot-jacketed receptacles, compartments for rations, utensils, food, etc. It can be detached from the body and, being drawn by one horse, is used for food distribution while the body continues cooking. The whole is drawn by two horses, weighs 24 hundredweight, and cooks for 250 men and their officers." On the march it travels with the first line of transport. From these, or from improvised dugouts (Fig. 1) conveniently situated, food is carried by hand in jacketed boxes and covered tins, through the communication trenches to the troops at the front.

A lesson taught us by experience in the Spanish and Boer wars, as well as by the discoveries of modern bacteriology, is the importance, from a hygienic standpoint, of avoiding "carriers" in any work that concerns the preparation and distribution of food. The medical history of all men detailed into company kitchens should therefore be investigated, coupled with a careful examination of their actual physical condition. Much sickness, especially the intestinal varieties of disease, may often be avoided in this way.

It has been found abroad that our former plan of screening entire kitchens can be improved on by substituting the screening of the food itself, the fly nuisance being better controlled in actual practice in the latter way. Screened cupboards or safes are used for meat, bread, jam, opened tins or other foods that attract flies, and eating utensils are kept covered. Simple muslin squares, weighted at the corners, can be used for much of this work. Covered barrels or tins are employed for the bestowal of refuse, previous to incineration.

Grease in the sullage water resulting from cooking processes is often quite a nuisance, and a simple method of getting rid of it in camp has been devised in the form of a sort of grease trap. A box is filled to a depth of several inches with clean sand, and a

vertical partition placed in the middle which dips down at its lower edge for a couple of inches into the sand, making two compartments. The sullage introduced into one side filters through into the other under the partition, leaving most of the grease behind. The effluent is handled as described below for urine. The process works better if gross particles are first removed from the water by running it through a kerosene tin loosely filled with hay. The filtering materials are renewed as required when they become clogged.

II. WATER SUPPLIES

A glance at the diagram (Fig. 1) will show the method of supplying drinking water to the troops in the trenches. Water tanks are set up at distances of 1,000 yards or more from the first line trenches, obtaining their supplies from pipes when such a system is available, or otherwise from horse-drawn water carts. The water in the tanks is, when necessary, sterilized by the hypochlorite process, which seems to act as a bactericide by oxidation with oxygen liberated from the hypochlorite rather than by free chlorin. One part of available chlorin per million acting for half an hour is an effective dose, and this is supplied by 2 gm. of bleaching powder to the ordinary water cart containing 110 gallons. The process requires supervision and examination of the chemical from time to time by titration methods to see that it has not lost its strength. From the tanks the water is carried in kerosene tins by hand through the communicating trenches, and stored as a reserve in dugouts back of the support trench. The soldiers' water bottles are filled there. Cavalry soldiers are supplied with sterilizing tablets for use in the bottles themselves.

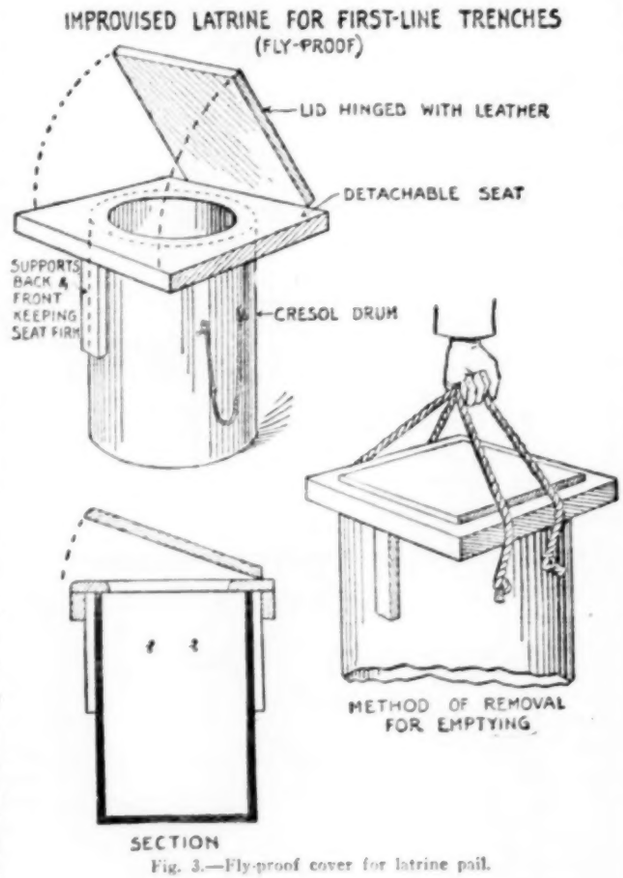


Fig. 3.—Fly-proof cover for latrine pail.

III. DISPOSITION OF EXCRETA

The conditions to be met abroad with respect to this point are practically those of a siege. Various methods were tried in the earlier part of the war. One of the simplest was a sort of reversion to the old stink-pot idea of the Chinese; that is, the material, collected in buckets, was thrown over into the enemy's trenches. Reprisal on the part of the enemy led to a tacit mutual abandonment of this plan. Moreover, the use, under any conditions, of pits, buckets, etc., in the first-line fire trenches led to results so disagreeable and even insanitary that the attempt, made for the sake of convenience, had also to be abandoned.

The only practicable solution of this important problem has been found in the system of disposal employed at present by the British, which is to use bomb-proof pits or dugouts leading out of the "communication" trenches. The position of these trenches and the associated pits will be readily understood by an inspection of the accompanying diagram (Fig. 1).

The ideal method, and one that is practicable in most cases, is to use, in the pits, individual buckets or tins with improvised handles, enclosed in simply constructed fly-proof boxes, or at least in boxes having a fly-proof lift-off seat, that will fit closely on the top of the pail. Lids should be made self-closing (Figs. 2 and 3). The pails when about two thirds full are replaced by clean ones, and carried back by hand for final disposition of their contents. Fresh buckets are filled about one quarter full with dilute cresol solution (1:360), after the internal surface has been rubbed with crude oil, when this is available. In some cases, especially when incineration of the contents of the buckets is to be carried out, sawdust, instead of cresol, to a depth of one quarter to one third, is employed, and the same material added by a scoop after each act of defecation—100 pounds of sawdust per day per regiment will suffice. Whenever spillage occurs during removal, the soiled area should be treated at once with a 5 per cent. cresol solution. When possible to provide it, a concrete floor for the bomb-proof pit is a great improvement. Bomb-proofing usually means in this connection simply a sufficiently thick layer of earth between the roof of the excavation and the surface of the ground.

It naturally adds much to the efficiency of this system if the urine can be handled separately, particularly in incinerator methods. This is done in some cases by separate urine buckets, in others, as in the diagram (Fig. 4), by urine soakage pits. These are constructed by digging holes in the ground at a convenient place in the bomb-proof pit about 4 feet in each dimension, loosening the earth at the bottom, and then filling up with stones or perforated tin cans to near the top; a layer of brush or grass or sacking is placed over the stones, and the whole filled up with earth level with the surface of the ground. Funnels painted white, so they can be easily seen at night, may be built into the four corners of the urine pit, or a galvanized iron trough, conveniently situated to catch the urine, may be led into it (Fig. 4). Loose plugs of hay should be placed in the funnels, and with all soiled areas of the contiguous ground surface, as well as urine troughs when present, be treated with 5 per cent. cresol solution about twice daily.

The under as well as the upper surface of the above described box-seats should be swabbed with cresol.

Cleaned buckets, cresol solution, sawdust, toilet paper, and other necessary materials are stored in a bomb-proof dugout situated off the communicating trench, conveniently near to the bucket and urine pits (Fig. 1).

As to final disposal, the buckets are carried back by hand and (1) buried, (2) incinerated in destructors, or (3) emptied into deep trench latrines. In any case the buckets are at once cleaned, best over a concrete washing platform and with the aid of dilute cresol solution, followed by the use of dry sawdust and a stiff brush.

1. In disposition by burial, the contents of the buckets are emptied into a quartermaster's sanitary cart (*Anglice* tumbrel) and carted away to the reception area, where they are trenched into the ground daily and covered with not less than 12 inches of earth. Urine or sullage water is best treated separately by first passing it through a sedimentation tank, and then irrigating it out on to shallow furrows on the land selected, through wooden or earthenware channels. Pools should be avoided by feeding out the effluent as evenly as possible. The areas treated in this way are with difficulty kept in a sanitary condition with regard to flies and, in the thickly inhabited areas of northern France, are often hard to find available.

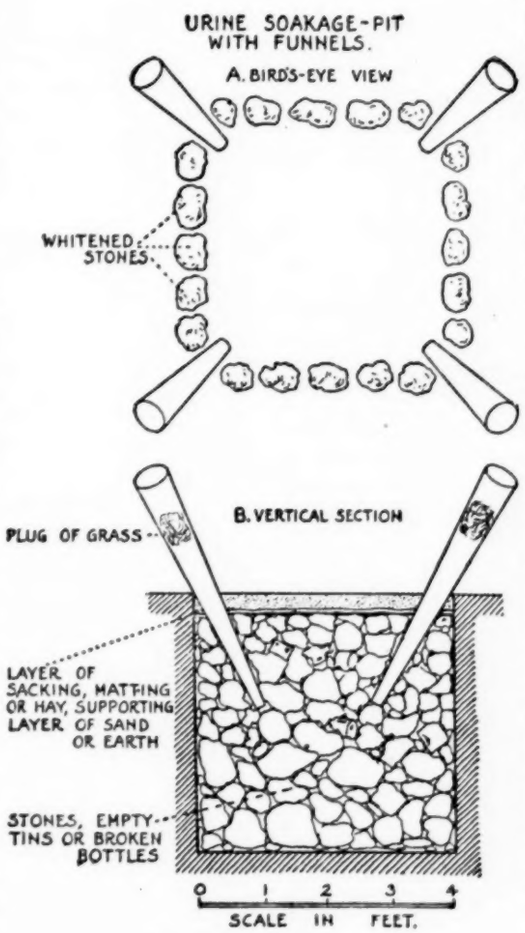
2. The ideal method of disposal, and that selected wherever practicable, is by incineration in some suitable form of destructor. This apparatus can also handle other forms of dry camp refuse, which in addition serves as fuel. The British use successfully the Horsfall and the Meldrum types of destructors or some improvised modifications of them.

The unit or Horsfall portable destructor is constructed of iron walls with firebrick lining. It serves 1,000 men, if the urine has been previously drained away from the solids into a soak pit, and at an expenditure of not over 100 pounds of fuel per day. In this type of incinerator the furnace is separated from the bottom of the flue by a baffle plate, thus forming a combustion chamber in which the solid excreta are burned. This is the essential thing in the plan of this apparatus as, besides aiding combustion, offensive gases are thus oxidized and made inodorous. Very careful firing and stoking is necessary for its proper working, a supply of one half fecal matter and one half other refuse at each feeding giving the best results. The English Sanitary Notes (1916) state that improvised incinerators of the Horsfall type may be easily made with bricks or kerosene oil tins filled with ash and clay and wired together, the important thing being to be sure that a proper combustion chamber is provided.

The central or Meldrum type of destructor works on a larger scale and serves from 5,000 to 8,000 men. Being fixed and necessarily located further back from the front than the smaller Horsfall type, cartage of the buckets for part of the distance is required. A drying shelf over the fire is a very useful addition to the fixed incinerator. It is in these incinerator methods, as stated above, that the sawdust is an especial improvement over the cresol solution for the pails.

The foregoing are of the closed types of incinerator. The open types, while easily adapted to ordinary refuse, are for obvious reasons extremely difficult if not impossible of application to the disposal of excreta.

3. In the use of the pit system of deep trench latrines for the final disposition of excreta on a large scale, holes are dug in a suitable place from 10 to 12 feet square and about 4½ feet deep. The English call this arrangement the "American oil-pit," and it is in fact a sort of compromise between the burial and incinerator methods just described. It is, I believe, the method now most used by the British. It certainly has the advantage of simplicity and can be made to work satisfactorily, if not perfectly, by proper supervision and care. Everything depends on the method of handling. A fly-proof cover is placed over the pit. The contents of the buckets brought back by hand from the bomb-proof pits in the communication trenches are emptied into the pit with kitchen and other camp refuse, including old tins which have previously been perforated. Urine is handled in this method by having a false bottom to the pit made of corrugated sheet iron, with numerous perforations through which the liquid material runs. In other cases the bottom of the trench is made to slope down toward a smaller and deeper pit on one side, into which the urine runs. Once a day, the fly-proof cover is removed from the trench, some hay or straw added, kerosene oil is poured over the material contained in the pit, and the whole burned over. The heat generated serves to evaporate the liquids. When the contents have reached within about 3 feet of the surface, the pit is filled in with earth and a new one dug.


URINE SOAKAGE-PIT WITH FUNNELS.
A. BIRD'S-EYE VIEW
WHITENED STONES
B. VERTICAL SECTION
PLUG OF GRASS
LAYER OF SACKING, MATTING OR HAY, SUPPORTING LAYER OF SAND OR EARTH
STONES, EMPTY TINS OR BROKEN BOTTLES
0 1 2 3 4
SCALE IN FEET.
Fig. 4.—Urine soakage pit.

Closely allied in principle to the subject of the disposal of human excreta is that of the disposition of horse manure, itself a vital question around army camps, on account of the enormous breeding of flies that always takes place, when some scientific and adequately administered plan of prevention is not carried out. The picket lines, which are, for convenience, nearly always in the immediate vicinity of camps, should be cleaned off carefully every day and the scrapings as well as gross manure removed. The lines

should be burned over at least once a week with the aid of kerosene.

The difficult problem is to dispose of the manure thus collected. The ideal plan, and the one followed whenever practicable, is to burn it in specially designed incinerators. I have seen this satisfactorily done in the ordinary rock pile incinerators that we have used for some years past in the disposal of refuse in our American camps. Good results are difficult of accomplishment, however, and require much labor and care. Abroad, more elaborate methods have been put into practice, and though the construction of the required apparatus is more difficult than in the case of the rock-pile incinerator, the subsequent working is much easier and more economical.

One plan is to construct a wire frame or grid. This is of any required length, and is made in rectangular basket shape, the bed being 4 feet wide and 4 feet deep, and elevated about 2 feet above the surface of the ground. Any kind of wire may be used, such, for example, as that found binding up bundles of hay. The meshes of the trough or basket are about 5 inches square. The incinerator is set broadside to the prevailing winds. The bars at the bottom are made to run from side to side rather than longitudinally.

Another type of manure incinerator is a rectangular open brick pit, built like the former, above the ground. Its internal dimensions are from 9 to 10 feet each way, enclosed by a brick wall 9 inches thick and about 5 feet high. Air inlets are arranged below on the sides at the ground level, and are about 15 inches square. Just above these is laid a row of Decauville rails, turned with the flange up and about 3 inches apart, to form the grate bed.

Either of these devices burns manure quite effectively, with the aid of a little kerosene. To save fuel the manure should be first spread on an improvised drying platform, best built of concrete, situated alongside the incinerator.

In default of incinerators, manure should be carted as far as practicable away from camp and piled in a dump on firm, dry ground, according to the English method of "close packing." A compact rectangular block is the best shape, not over 5 feet high. Each new load of manure should be beaten down tightly with shovels into the sides of the heap, and the surface and sides treated by spraying with a solution of borax (¾ pound to 1 gallon of water). The whole is finally covered over with about 12 inches of earth. The theory is that the heat developed by fermentation in the interior of a mass of this kind will prevent fly breeding by killing the larvae.

We thus attempt by the methods described above to attack the fly evil at its source; that is, to prevent breeding. Surprising results can be had by hard work and careful supervision. However, none of these plans in actual practice ever works quite perfectly. Some flies will get into the best managed camp, and even there we must attack them with zeal and the use of fly traps, sticky paper, poisoning (3 per cent. dilution of liquor formaldehydi in sweetened milk makes a bait attractive as well as destructive to flies) and the wire "swatter." The matter of screening I have already considered.

Animal carcases, such as those of horses, are liable to cause great nuisance and must be suitably disposed of. The simplest method is to eviscerate the body and bury the entrails and other viscera. The remains of the animal are then covered over with hay or dry grass, a quart or so of kerosene is poured on, and the whole is set fire to. This does not usually accomplish complete incineration, but has the effect of sterilizing the surfaces of the ground as well as of the body, so that flies are not attracted and no particular nuisance results.

As to the disposal of human bodies, it is probable that, scientifically speaking at least, when they are in large numbers and in thickly settled areas, the method of incineration is most sanitary and generally satistory. A stone cairn is constructed, and on this alternate layers of bodies and wood are placed. Kerosene or tar is poured freely over the bodies and fuel and the whole set fire to. Combustion is usually efficacious and no further measures necessary. The method is said to have been used with success in Manchuria. The British, for sentimental reasons, have not adopted it in the present war, and I believe they have had no particular trouble in carrying out the usual methods of disposal by burial. It is extremely probable that we shall follow their example in this particular, though of the sanitary advantages of the cremation method there can be little doubt.

IV. PERSONAL CLEANLINESS

This question, always important in sanitation, and especially so in armies on account of the unavoidable crowding, takes on added importance in the present war, owing to the recently discovered fact that the body louse is the transmitting agent of typhus fever. The recent epidemic of this disease in Serbia will be readily recalled to mind, and it requires little stretching of the imagination to conceive of its possible introduction at any time on the western front.

In conditions such as prevail at present in northern France and Belgium it is, of course, impossible to banish the louse entirely; the attempt must be made, however, to reduce to the minimum this unpleasant and dangerous accompaniment of army camps under what amounts, in this respect, to siege conditions; hence the phrase, "delousing." Adequate personal cleanliness of body and clothing is the only preventive or, I should say, palliative for this pest. The individual can, no doubt, do a great deal along these lines to meliorate his own condition. Army sanitarians must also do everything possible to afford facilities for the necessary delousing, by wholesale, of the troops. This can be effected only by the establishment of divisional or other bathing plants for the soldiers, in connection with adequate facilities for the washing and disinfection of clothing on a large scale. I have recently described these matters in considerable detail elsewhere,[4] so I shall here pass them over with the mere mention of their great importance. The periodic examination of the men (at least once a week) to determine the fact of infestation by lice is of great value in this connection.

The personal use, besides frequent bathing, changing and washing of the clothing, of certain local applications has been found by the British to be quite effective. For killing adults, a powder known as the N. C. I. is dusted on the underclothing. This powder is composed of naphthalene, 96 parts; creosote, 2 parts, and iodoform, 2 parts; about two thirds ounce is required for each man. A special ointment has been found to have the effect of asphyxiating the young as they hatch out of the ova. This is rubbed into the interior seams of the various articles of clothing, in the

4. McCulloch, C. C.: South. Med. Jour., July, 1917.

quantity of about 1 ounce once a week. It is composed of crude mineral oil, 9 parts; soft soap, 5 parts, and water 1 part. The body, from the neck down, may also be anointed with this paste. A recent method said to be successful is to impregnate articles of underclothing by dipping and wringing them out in a solution of 1 per cent each of naphthalene and sulphur in benzene or gasoline. This is the English "antiparasitic vest," and it is not especially irritating to the skin.

It is not very difficult to free the person from lice by these methods, but early reinfection in the billets and quarters can hardly be prevented, so eternal vigilance is as necessary here as it is in the pursuit of political liberty.

Infected buildings and huts should be treated with two hours' exposure to sulphur dioxid fumigation by the Clayton apparatus. Clothing and blankets may be disinfected on a large scale in the same way. Scalding the underclothing and ironing the seams of the outer clothing with a hot flatiron is sometimes quite effective, in default of more thorough methods.

It may be well to add a brief account of a few of the simpler methods of field disinfection in actual use abroad.

1. There is the portable emergency steam apparatus known as the Thresh disinfector. Its principle is that of the modern steam disinfector, that is, it has a central chamber into which the articles to be treated are placed and through which the current of steam flows, surrounded by an outer chamber or jacket, into which steam is first admitted and which serves to prevent condensation and loss of heat. Infected articles are put in at one end of the apparatus and after treatment are taken out sterilized at the other end to avoid subsequent contamination at the sterilizer itself. Steam at ordinary atmospheric pressure, evolved from a concentrated saline solution, is used in the field apparatus and is safe and adequate for practical purposes. Half an hour's exposure is sufficient, and the usual sized apparatus will accommodate sixty blankets, or their equivalent in clothing, at each charge. By using a sufficient number of these disinfectors, it is quite possible to supply an installation that will cover the large amount of work required in connection with the modern elaborate plants for divisional baths.

2. The field box disinfector works on the same principle, but is much simpler than the Thresh apparatus. It consists of a jacketed metal box, with openings at top and bottom through which there is conducted steam generated in a separate metal boiler, heated over an improvised stone furnace. The only disadvantage of this apparatus is its rather small capacity.

3. The so-called "Serbian barrel" is an improvisation that has been much used and with good results on the British front in Belgium. The bottom end of a barrel is perforated with holes, and the top replaced by a flat metal lid, weighted down so as to fit tightly. Sandbag collars are wound around the top and bottom of the barrel, to retain the steam; the whole being then placed over a metal boiler; and this in turn rests on a brick or improvised adobe furnace, which has a flue at one end. The barrels with separate boilers are often set in series over a long narrow furnace. A container of 60 gallons' capacity will handle seven blankets at a time. As many as eighty of these Serbian barrels have been used at one time in a divisional bathing plant, where the Thresh disinfectors were not available.

(To be continued)

ARGYRIA LOCALIS DUE TO ORGANIC SILVER PREPARATIONS*

GEORGE MANGHILL OLSON, M.D.
MINNEAPOLIS

A pronounced bluish green, slate gray or dark brown permanent pigmentation of the skin is a very unfortunate accident that may follow the local therapeutic use of argyrol and the various other organic silver preparations.

The generalized argyria or argyria universalis following the internal use of silver nitrate, or occasionally its local application, has been well studied and recognized since the classical paper on this subject by Frommann[1] in 1859.

The localized argyria or argyria localis following the local use of silver nitrate, and that occurring as an occupational argyria in workers in silver, is also well known, very valuable papers having been written on this subject by Blaschko[2] and Lewin[3] of Berlin in 1886, and more recently by Koelsch[4] in 1912.

Comparatively little work has been done and very little has been published on the localized argyria due to the local use of argyrol and the other organic silver compounds. At times the local use of argyrol and protargol results in a generalized argyria, as reported by Davidson.[5] This, however, is quite unusual, and the resulting argyria that may follow the local use of the organic silver compounds is nearly always localized or argyria localis.

Synonyms: Argyrosis, argyriasis, argyrism.

THE ORGANIC SILVER PREPARATIONS

Argyrol and protargol, with albargin in Germany, are probably the most important of this group. Other organic silver compounds are argentamin, argonin, ichthargan, sophol and cargentos.

CASE REPORT

The patient, Miss M., first came under my observation in November, 1916. Four years previously she had sustained a fracture of the nose, the laceration of the soft parts extending to the right lower eyelid.

Her physician, in addition to other measures, dropped argyrol into the right eye. The argyrol made its way into the lacerated tissue of the right lower eyelid, nose and cheek. The conjunctiva was not affected.

The resulting bluish green and slate gray pigmentation has been very unsightly, and for its relief the patient had consulted oculists and physicians in this country and abroad. The extreme edge of the pigmentation in the middle of the cheek disappeared spontaneously. Fifteen or twenty bichlorid of mercury injections had been given in the remaining pigmented area, and according to the patient, a slight improvement had resulted from these injections.

During the past two years the condition has been stationary.

Under the administration of hexamethylenamin, 5 grains three times a day, the condition improved at once, and in two weeks half of the area of the pigmentation was gone, and the rest of the area of pigmentation was considerably lighter in color. The hexamethylenamin was then increased to 10 grains three times a day. The improvement continued but was not as marked as during the first two weeks. After six weeks the hexamethylenamin proved irritating to the stomach and kidneys, and was discontinued for a time.

* Read before the Section on Dermatology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Frommann: Virchows Arch. f. path. Anat., 1859, **17**, p. 135.
2. Blaschko: Monatsh. f. prak. Dermat., 1886, p. 197.
3. Lewin: Berl. klin. Wchnschr., 1886, p. 417.
4. Koelsch: München. med. Wchnschr., 1912, **59**, 304.
5. Davidson: Jour. Cutan. Dis., August, 1916, p. 605.

Approximately 75 per cent. of the pigmentation had disappeared at this time.

The hexamethylenamin treatment was first used by Crispin[6] in argyria universalis due to collargol. Hexamethylenamin was given for a cold, and the patient and physician were astonished to note that the silver pigmentation became several degrees lighter in color.

REVIEW OF THE CASES REPORTED

The majority of the cases of argyria of the skin due to organic silver preparations have involved the upper and lower eyelid and the adjacent skin. Conjunctival argyria, due to argyrol, etc., is still more frequent, but the majority of these cases do not involve the skin.[7]

Post,[8] under the title "An Experience with Staining the Skin by Argyrol," reported an argyria of the skin of the upper eyelid, the pigmentation extending almost to the eyebrow. In this patient the condition was due to the injection of argyrol following an operative procedure. In this article he mentions two other cases.

Davidson,[5] in 1916, reported a case of generalized argyria due to urethral injections of argyrol and protargol. Undoubtedly some cases of localized argyria due to urethral injections or instillations of organic silver salts have been overlooked or not reported.

A case of generalized argyria due to the internal administration of collargol was reported in 1914 by Crispin.[6]

CLINICAL SYMPTOMS

Following the repeated simple application of argyrol, etc., the staining comes on very slowly and gradually, and the discoloration or pigmentation constitutes the only symptom. If the solution has suddenly penetrated into the connective tissues following an injection or if argyrol has been applied to a lacerated wound, pain and swelling are present. However, the pain and swelling are not severe, and usually the only symptom presented is the pigmentation or discoloration. The argyrol solution stains the connective tissue in the cutis and subcutis at once, and, provided the epidermis is thin, as in the eyelids, the bluish green discoloration becomes apparent immediately. In places where the epidermis is thick and the argyrol solution has found its way only into the deeper parts of the subcutis, the pigmentation may not appear for some days, or until the stain is taken up by the tissues directly beneath the epidermis.

The color is usually bluish green, although often there are present varying shades of slaty gray and brown. The depth of the pigmentation varies according to the amount of silver in the preparation used. Thus a 5 per cent. solution of argyrol (25 per cent. silver) gives a very much more intense bluish green color than a 5 per cent. solution of protargol (8.3 per cent. silver).

The epidermis is rarely affected, but when involved shows a brown or black color.

About the eyelids the dark gray and bluish green pigmentation is decidedly more apparent when the patient is cold or tired.

HISTOPATHOLOGY

The pathology of argyria due to organic silver compounds is very similar to that of argyria due to silver nitrate. The silver pigment shows an especial affinity for the elastic tissue fibers. These fibers contain the granules of the silver pigment in combination as elastin silver.

The collagenous tissue fibers are stained diffusely and, provided the argyrol is in sufficient amount, stain a quite intense brown.

The silver pigmentation is usually marked in the subpapillary layer and about the hair follicles and cutaneous glands. The connective tissue cells show very little tendency to take up the stain.

The epidermis and the epithelial cells of the sweat and sebaceous glands are nearly always free from pigmentation, but occasionally show a diffuse brown color.

CHEMICAL NATURE OF THE SILVER DEPOSITS

The exact nature or formula of the silver deposits is a matter of doubt, but it seems very probable that the silver is present as silver albuminate or as complex albuminoid or organic compounds, and not as reduced silver or the oxids of silver.

Kanitz[9] has quite clearly pointed out that the silver deposits in the tissues, even in argyria due to metallic silver in occupational argyria, and that due to silver nitrate, are probably present as complex organic compounds. Unna[10] has called this combination elastin silver when affecting the elastic tissue fibers, and collagen silver when affecting the collagenous tissue fibers. Many writers, however, state that the silver deposits in argyria are present as the chlorid or subchlorid,[11] sulphid,[2], carbonate,[12] the various oxids of silver,[13] or even as minute particles of metallic silver.[14]

While it seems most probable that the greater part of the silver is present as a complex organic or albuminoid compound, a small part of the silver may be present as the oxid, chlorid, sulphid, carbonate or as metallic silver.

PROPHYLAXIS

The danger of argyria from the use of the organic silver preparations is not great provided certain precautions are taken in their use.

The results obtained in our animal experiments with argyrol show that fresh solutions give the same picture and degree of argyria that old solutions do. In other words, the argyria is due to argyrol as such, and not to decomposed substances in old solutions.

The intact epidermis and epithelium of the mucous membranes practically never take up the silver stain, unless the solutions are used steadily for a long time.

Ulcerated parts, as ulcer of the cornea and burns, where the epithelial layer is lost, readily take up the stain.

In chronic inflammatory conditions the epithelium of the mucous membranes becomes more susceptible to the organic silver solutions.

There is especial danger in forcibly injecting the solution of organic silver into the tear duct, urethra and similar places, as the stain may be forced into the loose connective tissues.

Argyrol, protargol and the other organic silver compounds should never be used in or near lacerated wounds.

6. Crispin, A. M.: Argyrism Following the Use of Collargol, THE JOURNAL A. M. A., May 2, 1914, p. 1394.
7. Lystad: Tidsskr. f. D. Norske Lægefor., 1908, p. 685.
8. Post: Am. Jour. Ophth., St. Louis, 1905, p. 86.
9. Kanitz: Arch. f. Dermat. u. Syph., 1909, **94**, 49.
10. Unna: Histopathology of the Diseases of the Skin, 1896, p. 1189.
11. Burdon-Cooper: Ophthalmoscope, June, 1917.
12. Posey and Wright: Diseases of the Eye, Nose, Throat and Ear, 1903.
13. Fuchs: Text Book of Ophthalmology, Duane Translation, Ed. 4, 1913.
14. Warthin: Reference Handbook of the Medical Sciences, 1913. Skramlik: Abstr., Practical Medicine Series, 1916, **3**, 93.

Patients should never be allowed to use solutions of argyrol, etc., as a home treatment for any great length of time. They should be required to report at least every two weeks, any slight degree of argyria looked for, and, if found, the use of the solution should be discontinued.

PROGNOSIS

The general opinion regarding argyria in general is that the prognosis is bad or hopeless. The prognosis in generalized argyria due to the internal administration of silver nitrate, in which condition there is a large amount of silver in the tissues, is undoubtedly almost hopeless.

However, this is not true as regards the localized argyrias due to organic silver preparations. The amount of silver in the tissues in these cases is small, and without question, in some of these patients, the pigmentation disappears spontaneously. Even in cases of localized occupational argyria due to metallic silver, the pigmentation occasionally fades, as in the case reported by Teleky.[15]

In Warthin's patient,[14] the argyria being general and due to colonic irrigations with silver nitrate, there was, after several years, a very marked lessening of the color, which Warthin ascribed to the fact that the patient had become adipose, the fatty tissue concealing the pigmentation.

TREATMENT

It obviously is impossible to destroy the silver present in the discoloration of argyria, and thus the problem is entirely different from that involved in the removal of such discolorations as that due to melanin in moles, etc.

Theoretically, there are three methods by which the stain might be removed. The first method is the employment by injection or otherwise of some remedy to form a permanent colorless combination with the silver. This is probably impossible, as all silver salts, especially in the presence of organic material and light, tend to break down and give a brown or black discoloration.

The second method by which the condition might be remedied is the use of such agents as blistering and electrolysis. These methods cause a local inflammatory reaction that probably results in a partial removal of the silver granules by the wandering cells.

The third and most important method is the use, either internally or by injection, of remedies that form soluble compounds with the silver pigment in the tissues, these resulting soluble compounds being absorbed and probably excreted by the kidneys.

The remedies in this third group must be sought either empirically or by experimentation on animals.

Remedies such as bichlorid of mercury, that in strong solutions completely decolorize argyrol in the test tube, are of little use in the tissues, while remedies, such as hexamethylenamin, that have a weaker effect on argyrol in the test tube, may be more useful in removing the argyrol stain in the tissues.

Sodium iodid internally 5 to 10 grains three times a day is recommended by Post.[8] Larger doses of sodium and potassium iodid have been given internally. Local injections of sodium iodid have also been used.

From the results obtained in Crispin's patient and in my patient, I believe that the hexamethylenamin treatment gives promise of being of value in this condition. This drug is given in 5 to 10 grain doses three times a day. A lessening of the stain should occur within two weeks. However, the pigmentation fades slowly, so that it is necessary to continue treatment for some months, allowing intervals of rest so that no irritation of the stomach or kidneys results.

Hexamethylenamin might also be used as a local injection, as Burnam[16] reports that it is not irritant in man in 1:7,500 and 1:250 solutions. In rabbits a 50 per cent. solution is not irritating when given hypodermically.

As far as I know the hexamethylenamin treatment has been used in only two cases, and while the results obtained in these two patients have been quite striking, the drug must be tried in many more patients with argyria due to organic silver salts, before we can come to any definite conclusions. The treatment, however, is inexpensive, easily given, and certainly deserves a trial in every case of argyria.

EXPERIMENTAL ARGYRIA[17]

In our early experiments the dog, guinea-pig and rabbit were injected with argyrol, etc., or these organic silver preparations were applied to lacerated wounds. In the rabbit the resulting argyria was more clearly seen, probably because of the thinness and translucency of the epidermis of the rabbit, so that in the later experiments rabbits exclusively were used.

In the rabbit immediately after the injection of fresh or old solutions of argyrol, protargol, etc., the typical bluish green color of argyria is seen. This is very beautifully shown in the ear of the rabbit where the tissues are very thin and translucent. The bluish green color is not due to a bluish green color of the silver deposits, but to the fact that the brown argyrol solution in the tissues appears bluish green when seen through the uninvolved translucent epidermis.

Small amounts of argyrol, as 0.4 c.c. of a 5 per cent. solution, do not prove irritating when injected into the rabbit, and but little swelling or induration results. The injection of large amounts of argyrol or protargol may prove irritating and result in large firm swellings.

The histopathology of argyria in animals is similar to that in man. The elastic tissue especially is involved, showing fine granules of silver pigment. The epidermis and the epithelium of the sweat and sebaceous glands are very rarely pigmented with the silver stain.

EXPERIMENTAL THERAPY

The chemical composition of argyrol is changed when it comes in contact with the tissues, so that decolorization of argyrol in the test tube with various chemical substances does not necessarily show that these chemicals will decolorize the silver deposits in argyrol argyria.

However, it is of interest to note that in addition to mercuric chlorid, potassium iodid, solution of formaldehyd, ammonia and hexamethylenamin will decolorize argyrol solutions. Five grains of hexamethylenamin will decolorize 1 c.c. of a 1:20,000 solution of argyrol.

At the outset of our experimental work in the therapy of this condition, we had hoped that we would be able to rapidly clear out the silver pigmentation by injections of hexamethylenamin, while in the untreated

15. Teleky: Wien. med. Wchnschr., 1913, p. 2886.

16. Burnam, C. F.: An Experimental Investigation on the Value of Hexamethylenamin and Allied Compounds, Arch. Int. Med., October, 1912, p. 224.

17. Work on experimental argyria carried out at the Research Laboratories of the Department of Medicine (Division of Dermatology), University of Minnesota Medical School.

animals the silver pigmentation would undergo no change. Thus we would be able to show conclusively the efficacy of hexamethylenamin in this condition. This we were unable to do.

The action of hexamethylenamin given over a comparatively long period of time is not so clear, as in all animals there is a marked tendency toward the spontaneous absorption of the silver pigment. In the dog and rabbit over half of 0.4 c.c. of a 5 per cent. solution of argyrol is absorbed in about two months. Thus the control animals were of little value to us as a measure of comparison with the treated animals.

In our first experiments the pigmentation apparently cleared up more rapidly in the treated than in the untreated control animals, but in our later experiments we were unable to see very much difference in the rate at which the pigmentation cleared up. In no case were we able to completely clear up the pigmentation by injection of hexamethylenamin.

SUMMARY

1. A very unsightly permanent pigmentation of the skin may follow the local use of argyrol and the various other organic silver preparations.

2. The use of freshly prepared solutions of argyrol does not diminish in any degree the danger of argyria.

3. The bluish green or slate gray color is not due to a bluish green or slate gray color of the silver deposits, but to the fact that the dark brown silver deposits appear bluish green or slate gray when seen through the uninvolved translucent epidermis.

4. The occurrence of localized argyria following the use of argyrol, protargol, etc., is uncommon, but the resulting blemish is so unsightly that every care should be taken in the use of these substances. The solutions should never be forcibly injected into any cavity or canal as the tear ducts, urethra, etc., and should not be applied when the skin or mucous membrane is not intact.

5. The general opinion is that the condition is irremediable. The conclusions drawn from this paper warrant a more hopeful prognosis.

6. Local measures, such as blistering and electrolysis, are possibly of some value in causing an inflammatory reaction that favors absorption of the silver deposits.

7. The hexamethylenamin treatment should be given a trial in every case of argyria due to organic silver compounds.

ABSTRACT OF DISCUSSION

DR. WILLIAM A. PUSEY, Chicago: I have had occasion to see some of the cases of localized argyria produced by the injection of argyrol into the lachrimal duct. I am greatly interested in Dr. Olson's suggestion of hexamethylenamin. I always thought the condition beyond relief, and I am glad to know of this possible means of improving it. While he was talking of deposits of silver in the tissues, I thought of some other accidents which have come to my notice of essentially the same character. In the case of argyria, a soluble silver salt enters the tissues and is deposited as an insoluble form of silver. It is really a tattooing from within. I have seen three or four very unpleasant accidents from the precipitation of insoluble substances which have been used on ulcerated skin surfaces as local applications. The most striking case of this sort was that of a woman who came to me a few years ago with an eruption over her shoulders which looked like a follicular purpura. A solution of copperas—sulphate of iron—had been used as a local application, with a resulting deposit of iron oxid in the corium. The skin had healed over this and there was left a permanent deposit of iron oxid in the skin, tattooing it a dark mahogany red. In sections it was proved with a potassium ferrocyanid reaction that this deposit was iron. I have also seen a white tattooing of the skin from solutions of lead acetate on surfaces where the epidermis in spots was completely destroyed. The use of local applications, therefore, which may deposit insoluble substances in the corium, if there is superficial ulceration of the skin, is always attended with risk of accidental pigmentation after it.

DR. WILLIAM B. TRIMBLE, New York: Like every one else, I have heard of a number of cases of pigmentation about the eye following the use of argyrol, but know personally of only one case. In this patient as I understood it, the argyrol was injected in the lacrimal duct and caused the heavy pigmentation under the eye. My main reason for entering the discussion, is to call attention to the fact that I have tried on two occasions to produce pigmentation in isolated patches of leukoderma by the use of argyrol. The argyrol was diluted until, in my judgment, the proper shade was produced, and then injected under the skin. It was unsuccessful in both attempts. Seemingly, it is hard to produce pigmentation when it is desired, only to have it occur at times when one is least suspecting it.

It occurred to me that exposure to air might have something to do with the process, and the reason for the failure of argyrol to pigment when injected subcutaneously was probably due to the fact that it did not come in contact with the air. In injecting it in a suppurating lacrimal duct it is exposed to the air, and perhaps also to some rays of light.

DR. GEORGE MANGHILL OLSON, Minneapolis: The treatment with hexamethylenamin was tried on only two patients. The experimental work was not conclusive.

Regarding the absorption of the argyrol, of which Dr. Trimble spoke, there is no question that in many cases the patients recover spontaneously. Only a certain percentage of them remain permanently pigmented. In my patient the pigmentation remained four years. Most of the slight cases due to argyrol, especially about the eye, clear up in one, two or three years without any treatment.

THE RELATIVE VALUES OF PUBLIC HEALTH PROCEDURES *

CHARLES V. CHAPIN, M.D.
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What constitute the most effective lines of effort is the most vital question confronting every public health administrator. Money is the measure of most effort, and appropriations are limited. In what way shall the appropriation for the health department be expended so as to save the most lives and prevent the most sickness? Are our municipal health departments making the best apportionment of their funds? Are health officials devoting the most effort to that which will best conserve the health of the people? If any city is doing this, it has a model health department.

Certainly many cities are not doing it. It is hard to break away from tradition. Most persons think largely in terms of the past. Institutions are of slower growth than knowledge. It is a pity that they cannot be kept in closer alinement. Though it would be sad, indeed, to chase every pseudoscientific will-o'-the-wisp that happens across our path, it is even worse to cling tenaciously to the dead ashes of discredited theories.

Modern municipal health work began at a time when it was believed that municipal house cleaning was the chief, if not the sole, legitimate field of official sanitary activity. Sanitary science has progressed by leaps and bounds. Sanitary administration has been a laggard. It would be most interesting to see what sort

* Read before the Institute of Medicine, Chicago, April 24, 1917.

of health department would be organized if all tradition could be ignored. Given an appropriation of, say, 75 cents per capita, how would a commission of modern scientifically trained and experienced public health men organize a health department, if they were permitted to discard tradition and take cognizance only of the present day findings of sanitary science? Our health departments are not made in this way. They are the result of growth. One function after another has been grafted on the original duty of nuisance abatement, but the growth has not been well balanced. Health work does not extend according to any well thought out plan, but one duty after another is added, now by this person and now by that. Sometimes the health department is expanded at the instance of a group of earnest reformers having much sympathy for human ills, but little versed in medical and sanitary science. Sometimes a city councilman, getting his knowledge from the syndicated science of his Sunday paper, assumes to tell how the health department should be run. Again, it may be the new health officer himself who, in order to justify the political overturn of his office, seeks to reorganize the health work of his city after a few hours' study of some passing book on "sanitation." Rare, indeed, is it that competent advisers are called in to plan a health department so as to utilize most effectively the best scientific knowledge of how to preserve the health of the city, and it is more rare still for the politician to permit such a plan to be put in practice.

RELATIVE VALUES

Even those health officers who have given the subject much careful consideration do not feel sure of the relative values of different lines of health work, and it was to help clarify my own ideas as well as to assist in what I believe will be a helpful discussion that the attempt was made not long since to assign numerical values to the various functions of a municipal health department. It is said that no science can progress unless accurate measurements are made of the things dealt with. In accordance with this idea, it seemed desirable to indicate by figures the value of garbage disposal and of the diagnostic laboratory, of plumbing inspection and of baby nurses, and thereby learn how to apportion the funds and energies of the department.

In attempting to make such a distribution we must constantly bear in mind that the appropriation cannot be exceeded. A certain percentage of the funds may be set aside for contagious disease work, a certain percentage for school inspection, a certain percentage for vital statistics, and so on, but they must all add up to 100 per cent. exactly. If we should yield to the behests of every enthusiast, championing his hobby, the sum might be 200 or 300 per cent., resulting in a most uncomfortable deficit. So, too, time and strength are limited, as well as money. No man can work more than sixty minutes in an hour. To assign values to functions, so that time and money may be apportioned accordingly, is the purpose of the schedule here presented.

Unfortunately sanitary science is as yet far from an exact science. Its measurements are crude. For many things we have no measurements, but only estimates or guesses. It is desirable, however, to correlate even our guesses.

The table of values is intended to indicate the relative importance which should be attached the functions which are commonly performed by a health department in any average northern city at the present time. The apportionment must vary somewhat according to location, stage of sanitary development, character of the population, etc. In the South, where there are much hookworm, typhoid fever and other diseases spread through fecal infection, excreta disposal must receive special attention. Where *Anopheles* and *Stegomyia* abound, antimosquito measures come to the forefront. If the rodents of a city are plague infected, or likely to become so, the rat must be fought. A well sewered city can appropriate money for other lines of work which in less fortunate places must be devoted to the never ending task of privy sanitation. Every city must plan its health work to suit local conditions, but there will probably be only minor variations from the generalized type.

Experience is the best teacher. Methods which have been successful in the past must be followed in the future. There has been a marked decrease in the death rate during recent years, but it has not been all along the line. The bulk of the improvement has been confined to a few diseases. Thus in Providence,

TABLE 1.—RELATIVE VALUES OF HEALTH WORK

	Vital statistics	60
	Education	80
	Laboratory	50
	Control of nostrums	50
	Care of sick poor	50
Food	Adulteration	0
	Sanitation	10
Milk	Adulteration	3
	Sanitation	17
Nuisances	Privy sanitation	60
	Housing	20
	Plumbing	10
	Nuisances	10
	Refuse removal	0
	Fly and mosquito control	10
Infant mortality	Nurses	80
	Supervision of midwives	10
	Babies' boarding houses	5
	Milk stations	5
	Consultations	20
	Prenatal clinics	10
	School inspection	80
Contagious diseases	Home isolation	100
	Hospitalization	50
	Immunization	50
	Venereal diseases	20
Tuberculosis	Nurses	60
	Dispensaries	40
	Hospitalization	40
		1,000

in sixty years, there has been a decrease in the annual number of deaths amounting to about 600 per hundred thousand living and confined practically to typhoid fever, smallpox, scarlet fever, diphtheria, tuberculosis, diarrheal diseases and other diseases of infants.

It is not for a moment claimed that all of this reduction is due to conscious effort on the part of the community, though I believe that a good part of it is. Thus there has been a reduction in the death rate from pulmonary tuberculosis of about 240; but as it began long before any efforts were made for the control of the disease, we must believe that much of the reduction is due to unknown causes. As the decrease in recent years has been fairly rapid, and has followed well thought out methods of control, it is perhaps not unfair to assume, as I have done, that a drop of 65 deaths per hundred thousand may be attributed to present day methods of combating this disease. On the other hand, probably the whole of the decrease in typhoid fever is due to municipal effort. It seems fairly conservative to claim, as a result of community health work, at least half of the decrease in acute communicable disease above referred to which has

occurred in Providence. The figures in Table 2 appear reasonable as a statement of the deaths prevented by official control and also of the chief means by which the lives were saved.

TABLE 2.—MEANS OF SAVING LIFE

Typhoid fever	10	by direct control
Typhoid fever	50	by privy control
Scarlet fever	60	by direct control
Diphtheria	20	by direct control
Diphtheria	30	by free antitoxin
Diarrhea, over 1 year	15	by privy control
Tuberculosis, pulmonary	65	by direct control
Tuberculosis, other	15	by direct control
Infant mortality	70	by nurses, etc.
Infant mortality	10	by milk control
Total	345	

By putting the facts in a different form, it appears that community activities have been effective in saving these 345 lives in the ratios given in Table 3.

TABLE 3.—RELATIVE VALUES OF COMMUNITY ACTIVITIES

Direct control of contagious diseases	26
Direct control of tuberculosis	23
Antitoxin	9
Control of privies	18
Prevention of infant mortality	21
Control of milk	3
Total	100

These are old and tried lines of public health work, and must hold the largest place in apportioning the activities of a municipal health department.

There are many other activities, the value of which cannot be measured at all, or only in the crudest sort of way. Some of these we know are of great importance, while others are still in the experimental stage and, though we cannot tell just how much they are worth, must be given a fair trial. In our table of values they can be given only an arbitrary rating.

BASIC FUNCTIONS

Of fundamental importance is the collection and tabulation of vital statistics. It is only by this means that evils can be located and remedies found. It is as difficult to put a health value on vital statistics as it is for a merchant to put a money value on his ledgers; but as the merchant decides to expend on his bookkeeping enough to get correct results, so the municipality must spend enough on its vital statistics to make them tell the truth. Perhaps this is fairly indicated by the relative values here assigned.

The education of the public in matters pertaining to health is another basic function, which, until recently, has been much neglected and is now often injudiciously performed. The leaders of thought and action in each community must be made familiar with the successes of modern sanitary science and the means by which they are obtained. To teach the politicians is another story; but if the leaders think the public health worth while, the politicians will, too. To reach the great masses of the people is more difficult still, particularly the foreign peoples in our cities. The literature which is read and digested by the thoughtful farmers and merchants of the country falls on stony ground in the foreign quarters of our cities. The movie may help somewhat, but the personal influence of the schoolteacher, the nurse and the social visitor have thus far seemed to accomplish most. An arbitrary value must be assigned to this function also. One is tempted to write the figure large, but the knowledge that the sum of our values cannot exceed 1,000 reminds that we must not rob Peter to pay Paul.

The great leavening force in modern health work has been the diagnostic laboratory, the handmaid of epidemiology, as it has been called. To control disease, either by prevention or by cure, we must first find it. This the laboratory helps us to do. The remarkable apparent decrease in the case fatality of typhoid fever during the last twenty years or so has been due almost entirely to better diagnosis by the help of laboratory methods, so that many cases are now discovered and properly cared for which formerly would have been unrecognized. Not only has the laboratory taught us to recognize mild infections of typhoid, diphtheria and syphilis where they were not before suspected, but it has taught us by this experience to look for the atypical in other diseases, in which the laboratory can as yet give no direct help, as in scarlet fever and smallpox. Doubtless the laboratory in all our larger cities is continually saving lives, but there is no way of measuring this any more than there is for the merchant, to return to our former simile, to place a money value on his yardstick and his scales, yet he could not do business without them. The diagnostic laboratory is worth all that it costs, and perhaps its value is not unfairly indicated in the schedule.

The care of the sick poor outside of the hospital is not usually considered a health function. Yet there are a number of cities in this country in which it is performed by the health department. In one or two it is treated seriously, for there are some who consider it primarily a health rather than a charity problem. Sickness and poverty are closely related, and the poor, from both necessity and indifference, neglect sickness. To secure for them prompt and efficient care should save many lives and discover much early infection. About one quarter of the cases seen by the physicians to the poor in Providence are acute infections, and a considerable percentage of the others are such as usually come within the cognizance of a health department. This function must be performed efficiently. Slipshod methods, superficial examination and perfunctory prescribing are not much better than nostrum taking, pure and simple. As the medical care of the sick poor is in a chaotic, transitional and experimental stage, a moderate value has been assigned to it. It is not impossible, however, that in the not distant future the municipality will furnish or direct, by adequately paid physicians, medical service, and not only for the poor, but also for a considerable part of the population. This function should be performed by the health department so as to be properly coordinated with the other activities of that department.

THE NOSTRUM EVIL

Closely connected with the last subject is the elimination, or restriction, of the nostrum evil. If it is proposed to get rid of the latter, good medical service must be supplied in its place. The one common excuse of the poor for patronizing medicines is that they cannot afford to pay a physician. Conversely, I have confidence that a conscientious efficient medical service for the poor will do more than anything else to wean them from nostrums. This dual purpose is frankly acknowledged by those active in the restriction of venereal disease. An active campaign is waged against nostrums and the advertisers, and at the same time efficient clinics are organized. This combination, needed for the proper treatment of venereal disease, is probably needed just as much for all other diseases. The campaign against nostrums, which, has

been waged so heroically by the American Medical Association, has also been entered into by some state departments of health. A few cities, too, have taken active measures to the same end. While energetic action is not always feasible, probably nearly every municipal health department could do something, and many of them could do a great deal to eliminate this sickness-prolonging and death-dealing evil. An experimental value must be assigned to this function also.

SANITATION AND FOOD CONTROL

According to popular notion, the principal functions of a city health department are sanitation and food control. When a health department is mentioned, most people think first of an inspector of nuisances. To them municipal housecleaning is the chief duty of the "board of health." Improved housing, plumbing inspection, garbage disposal, street cleaning, "clean-up week" and antifly campaigns are even now, by our most intelligent people, considered the chief business of the health officer. If the latter does not put his whole heart and soul into such concerns, but neglects them that he may apply himself to the cure of syphilis, the provision of nurses for tuberculosis, the establishment of infant welfare stations, the prevention of blindness in babies, or the improvement of the eyesight of schoolchildren, he may find himself in marked disfavor.

Some municipal sanitation is of great and direct value in the prevention of disease. The improper disposal of human excreta is the chief cause of typhoid fever, cholera, the infectious diarrheas and dysenteries, and hookworm infection. Where there is no system of excreta disposal, as in some of the rural portions of our country, and where the summer is long, this subject may well, at first, have a large part of the health department's attention. In a thoroughly sewered northern city, with few privies, and decent housing, excreta disposal requires comparatively little attention. The inspection of plumbing is important from a health standpoint only so far as it relates to excreta disposal. We need good plumbing as we need good chimneys, and both are essentially parts of building inspection. So also, nuisance inspection, except as it relates to excreta disposal, is concerned far more with esthetics than it is with health. The odors of decay which strike terror to a careful housewife are really not half so annoying as the exhaust from an automobile, or the fumes from the oil on the macadam road. Neither will cause real sickness; nor are papers and tin cans in the vacant lot a source of disease. All these things shock our sense of decency, and they ought not to be; but why burden the health officer with the arduous task of remedying them? The police should do all that, but they usually decline.

In a considerable portion of our cities, the health department is charged with the removal of garbage and often of other kinds of refuse. This has only the most indirect and tenuous connection with health, though no one questions for an instant that it should be done and done promptly and well; but it is essentially a function of the department of public works.

Concerning the relation of housing to health, except for the grosser forms of bad housing, we know very little. That better houses encourage higher standards of living is probably true; that higher standards of living mean higher wages is not improbable; that the sickness rate decreases as wages advance is doubtless true, and that the restriction of crowding and an abundance of light and air facilitate personal as well as household cleanliness and so check the spread of infection is quite likely to be the case. The beneficial effects of good housing on health are largely indirect. Much besides housing affects health indirectly. A good trolley system, industries that pay high wages, a clean city government, an effective school department, must all react favorably on health. If the health officer went into every scheme for civic betterment, his labors at reform would leave him no time to look after syphilis and tuberculosis, diphtheria and ophthalmia. He had best concentrate his fire where it will do the most good and where he is, or should be, most competent to direct the attack.

Much has been written about the fly and his wicked work. In some places he is more dangerous than in others. Where the summer is long and privies are many and there is much initial infection, this insect may be a considerable menace. It is difficult to see how it can be so in a well sewered northern city. Last year Boston had the lowest typhoid death rate of any American city, 3.5 per hundred thousand living; but Boston has not carried on any effective antifly campaign. Providence has its full quota of flies, and is otherwise not a very clean city; yet our typhoid death rate has fallen from 69.4 to 5.1 by means of pure water, the abolition of privies and the following up of cases. The diarrheal death rate has fallen from 252 to 106. If we could get rid of all our privies and pasteurize all our milk, our typhoid rate might vie with Boston without our touching a fly. To exterminate flies is costly. If the people wish to pay for abating this nuisance, well and good. As a citizen I would vote for it; but if as a health officer I had $10,000, I would not swat the fly but would open a venereal clinic, or hire some nurses for the supervision of tuberculosis.

In nonmalarial regions the mosquito, like the fly, is a nuisance, but not a menace to health, the mosquito should be held down to the lowest limit, and most citizens are willing to pay the cost. It may even be that the special appropriation would best be spent by the health department, as biologic knowledge is more likely to be found there than elsewhere in the city government; but it should not be counted as an expenditure for health. Of course, in a malarial region mosquito control is a most important health measure which has received altogether too little attention.

Another time-honored and popular means of promoting the public health is control of the food supply. This control naturally is divided into the prevention of adulteration and the promotion of cleanliness. Though there is much lurid literature on the dangers of impure food, as a general thing adulterants are as likely to be healthful as unhealthful. Adulteration, with rare exception, is an economic and not a health problem. There is almost as much nonsense written about ptomain poisoning as there is about adulteration. "Ptomain poisoning" is the popular name for disorders arising from bacterial changes in food. Of such we really know little except that they are not nearly so common as is believed, and that the routine inspection and condemnation of cabbages and corned beef, as practiced by our city health officials, probably has no effect in restricting the somewhat rare occurrence of such poisonings.

That food is not rarely infected with human secreta and excreta by those who handle it, and thus becomes a real factor of importance in the transmission of dis-

ease is certain. It is worth while to try to check this, though the efficiency of some of the popular "sanitation" of markets and restaurants may be questioned. The elimination of infected food handlers also gives some promise, but its true value is yet to be determined. The small value here assigned may arouse protest, but who will argue that the laboratory is not five times as important, or baby nurses eight times as important, or the direct control of contagious diseases ten times as important as is food sanitation?

Milk should be considered apart from other foods. It is certainly of great importance in infant feeding, though the close dependence of infant mortality on the character of the milk supply has probably been considerably exaggerated. Many cities have markedly reduced the infant death rate without greatly improving the cleanliness of the milk. Doubtless the most effective way to eliminate the danger from milk is to require the pasteurization of all milk, or at least all except a limited amount of a certain high standard, for infant feeding. The watering of milk is an adulteration which does affect health, for a variable composition sadly interferes with exact methods of infant feeding, and likewise increases the danger of infection.

OTHER ACTIVITIES

Firmly believing, as I do, that all the medical activities of the municipality should center around the health department, I naturally consider the medical inspection of schools a proper function of this department. As a matter of fact, it is somewhat of a cooperative undertaking, and neither the school department nor the health department can properly carry it on without the free and generous assistance of the other. Tact and forebearance are needed on both sides to carry on this important work, no matter which department has it in charge. The vast majority of both teachers and medical men connected with school inspection are satisfied of its great value, but it touches school life in so many ways that a statistical demonstration of its benefits is by no means easy. Without such statistical data, it is difficult to assign a definite value to this function. The one given in the table is only tentative, and may well be subject to revision.

Another and quite new activity is the campaign against venereal disease. That this is of great importance no one denies; as to methods, however, we are still in the experimental stage. We do not as yet know what results can be obtained, though the future is promising. It does not seem unreasonable, as is here indicated, to devote 2 per cent. of the energies of the health department to this object.

ACTIVITIES WITH DEMONSTRABLE RESULTS

The sum of the values thus far assigned is 400. That is, to the activities of the health department which we have reason to believe are worth while, but the utility of which we cannot very well measure are allotted four tenths of the energy of the department. There are thus left six tenths, or 600 units on our scale, to be divided among those activities, the worth of which can be measured, with some degree of approximation, in terms of deaths prevented. These allotments are made in accordance with my judgment as indicated in the first portion of the paper.

While it is difficult to estimate the real worth of school inspection, that other branch of child welfare work known as the prevention of infant mortality has a value which is demonstrated perhaps more decisively and accurately than is any other form of preventive medicine. In practically every instance in which a community has undertaken to save the lives of its babies, it has been successful. The chief means has been the education of the mother. Wherever that has been successfully accomplished, the infant death rate has fallen. Taking the actual reduction of eighty per hundred thousand of the population in Providence, and assuming that seventy of this is due to specific effort made for that purpose, we should, according to our plan, allot a value of 126 to baby welfare work; but as this is such a promising field I have ventured to steal a little from the control of contagious diseases, and as a final estimate, 130 has been allotted. How this shall be divided among the different kinds of infant welfare work will depend somewhat on individual judgment, and may soon change as a result of wider experience. Perhaps the division here indicated may receive a fair degree of approval.

The direct control of the communicable diseases by isolation and immunization was an important duty of the health department even in that period of the last century when the dominance of the filth theory of disease had relegated it to a subordinate place. According to the best evidence at hand, there has been a marked decrease in the amount of several important contagious diseases against which fairly active measures have been taken for a considerable series of years. In cities in which the records have been kept for from fifty to seventy years, and active restrictive measures have been carried on for some time, typhoid fever, scarlet fever, diphtheria and smallpox have shown a phenomenal decrease. That this decrease is due in large part to the measures which have been taken I believe is true. Even the decreased virulence, which is responsible for part of this decrease, I have elsewhere suggested is probably partly due to the selective restriction of the more virulent, and hence more easily recognizable strains, by our methods of isolation. Among methods of control, isolation in the home is probably the most important. To secure this, special medical inspectors or trained epidemiologists have the chief place, but visiting nurses are becoming more and more useful. It will perhaps be a surprise to some that the hospitalization of acute contagious diseases is not given a higher value, as it has often been alleged that complete hospitalization would stamp out disease. This, however, it fails to do because of the unrecognized sources of infection. Hospitals are needed and needed badly for those patients who are so situated that home isolation is impossible, or who are in need of hospital care. So far as the spread of disease is concerned, the majority of patients can be taken care of fairly well at home. The great expense of the hospital is justified fully as much on humanitarian as on sanitary grounds. Its value as a health measure is perhaps fairly indicated by the rating here given.

Vaccines and curative serums are most valuable in the control of infectious diseases. Experience has shown that the use of these agents depends in great part on the initiative of the city or state. In one way or another, by furnishing at low cost, or perhaps without charge, and often by administration, the sanitary authority can succeed in popularizing methods of prevention or cure which otherwise would be little used.

A modern campaign against tuberculosis makes use of many means, and is often correlated with various private agencies. Outside of diagnosis and general

education, perhaps the most important municipal activities are nursing, dispensary service and hospitalization. There may be a difference of opinion about the relative value of these, but the figures given perhaps fairly represent present day views. Certainly hospitalization, which a few years ago was considered of first importance, has been relegated to a secondary place.

It may be asked why the protection of the water supply does not find a place in this discussion. It might perhaps do so, but it is more properly a function of the state department of health to guard water supplies, though some of the larger cities have resources sufficient for independent action. It is rare that a local health officer has any management in water works. It is his important duty to show by his morbidity statistics whether or not the water is above suspicion. So, too, industrial hygiene is omitted because it also is more often, controlled by state officials. A number of newer activities, such as the campaign against cancer, or the degenerative diseases, or the prevention of mental disease, are omitted because it was deemed unwise to let this discussion get too far afield, and better to deal with actualities rather than with possibilities.

THE AIM OF COMMUNITY HEALTH WORK

It is particularly urged that the values here assigned are not final. Even among the most careful students of sanitary science there would doubtless be considerable difference of opinion. Some of these differences would disappear after free discussion. It is partly the purpose of this attempt at valuation to bring out such discussion. Minor changes might be made, but no discussion will ever demonstrate that plumbing inspection is worth more than baby nurses, or that swatting the fly is as effective as abolishing the privy vault. The purpose of the paper is not to enter a special plea for the exact values here presented, but to show the need for perspective in planning health undertakings. If relative values had been carefully considered, the ill balanced health department which was recently brought to my attention would never have grown up. In a city of 100,000, home isolation receives only such time as the health officer can spare from his executive duties, while money is available for six nuisance inspectors. There is a fumigator, but no diagnostic laboratory; three food inspectors, but no baby nurses; and several plumbing inspectors, but no welfare stations or prenatal work, and no Wassermann tests or venereal clinics.

The figures given in the schedule are intended to indicate, though ever so roughly, the real health-conserving value of certain common functions of municipal health departments. It is not intended that either money or time should be apportioned in exactly these ratios. The cost of an adequate hospital for the care of advanced cases of tuberculosis would be many times greater than a good system of dispensaries and follow up nurses. With limited funds, the dispensary and nurse comprise the most economical and effective undertaking.

If the health work of the future is to be successful we must remember first that the old, ill founded idea that health work is to be centered on the environment has been displaced by the modern one, well supported by the data of science, that it is concerned directly with men and women. We would all like to live in spotless, flyless towns. Streets should be clean, yards tidy, houses neat, every garbage can covered, the cellar whitewashed, never a tin can on a vacant lot, every market white tiled, all bread wrapped in paper, and every laundry immaculate. This is for what we have campaigns and health weeks and for which appropriations can be obtained; but it would have little effect on the death rate. Mothers would continue to feed their babies with pickles and cookies; scarlet fever would spread; diphtheria would claim its toll; people would forget to be vaccinated; schoolboys would strain their eyes at their work; careless syphilitics would become paretics; ill treated poliomyelitis would make cripples; the man with "grip" would swallow tonics and cough medicines until he gave up work and his infant child died of tuberculous meningitis, and lifelong blindness would result from ophthalmia.

Municipal housecleaning will not cure these evils, but education, isolation and good medical care will. Community health work must have a broader outlook. It must do more than cleanse and isolate. It must make use of the best medical knowledge, not by stealing or begging it, but by paying for it, to prevent and cure disease. Many activities must be coordinated. Much has been done. There is more to do. Until there are unlimited money and unlimited talent available, let us earnestly study to do that which pays best.

PRIMROSE DERMATITIS AND ITS RELATION TO ANAPHYLAXIS *

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My interest in this lesion dates back one year or more, during which time I have been able to demonstrate that the primrose plant has been the exciting cause of at least ten cases of dermatitis. Like other American dermatologists I believe that this form of dermatitis is far from uncommon and is on the increase, probably owing to the growing popularity of the plant.

The *Primula obconica* seems to have been imported into Europe from China in 1883. Several years later it made its appearance in America, and since then several dermatologists in this country have made it and its resulting dermatitis the subject of some interesting papers. Foerster,[1] Zeisler[2] and Montgomery especially have given excellent reports and clinical data of cases under their observation. All of them, however, rely on one article (Nestler's[3]), for their analysis of the poisonous principle of the plant. Nestler was more or less of a pioneer, and though his observations were good as far as he went, his analysis was most superficial and limited. He did not say that the active poison was an oil, as some American abstractors imply and quote him as saying. He confined his description in this regard to what he termed poisonous material, which he repeats several times in his article, and then

* Read before the Section on Dermatology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Foerster, O. H.: Primula Dermatitis, THE JOURNAL A. M. A., Aug. 20, 1910, p. 642.
2. Zeisler, Joseph: Some Uncommon and Often Unrecognized Forms of Toxic Dermatitis, THE JOURNAL A. M. A., June 29, 1912, p. 2024.
3. Nestler's Hautreizende Primelu, Berlin, 1904.

goes on to mention its solvents. Nestler was under the impression that every one could be poisoned by the primrose, and after many efforts succeeded in producing a dermatitis on himself. He did recognize a varying sensibility of different individuals, however, and suggested its relation to the reaction of anaphylaxis.

In my cases of primrose dermititis I have been struck by the lack of well-marked isolated areas of intense irritation and vesiculation with the outline of the twig and leaf such as one sees in rhus poisoning. Rather has the irritation been of a more irregular, diffuse, ill-defined, erythematous character. As a result of this apparent difference in the irritability of the two poisons, the sufferers from primrose dermatitis seldom complain of the pain, tenderness and irritation that one sees in rhus poisoning. The subjective symptoms of itching, however, appear, on the other hand, to be much more intense in primrose dermatitis. In addition to this annoying symptom the patient soon begins to show signs of irritability from lack of sleep and rest. To add to the injury a number of my cases had been diagnosed as scabies and so liberally anointed with sulphur ointment as to complicate the picture with a sulphur dermatitis.

There is nothing difficult in the diagnosis. The dermatitis, which is usually limited to the hands, lower arms and the face, strikes one as being entirely artificial. In any vague cutaneous irrritation involving the above mentioned locations, one should always inquire if the sufferer handles or comes in contact with flowers. As to be expected, the removal of the source of irritation soon terminates the outbreaks, and a soothing zinc and tragacanth lotion with some such antipruritic as phenol (carbolic acid) or menthol relieves the itching and heals the lesions.

Considering the frequency of primrose dermatitis, it is rather odd that so little has been done in the search for the exciting poison. A comparison of the literature on this lesion with that dealing with rhus poison emphasizes this very clearly. The work of Syme[4] and Ford[5] in regard to this form of dermatitis venenata deserves praise, although the work of both has since been refuted. Syme was no doubt dealing with more than a simple glucosid, while Ford's attractive immunity and antitoxin theory built on his idea that glucosids produce specific antibodies has been attacked from several directions. I mention the foregoing experiments in order to point out the difficulties one encounters when one attempts to isolate the active principle of a plant, for we are still without this knowledge regarding rhus.

As I mentioned before, Nestler made no attempt to isolate the active poison in the primrose, while his explanations of the mode of action of what he termed poisonous material rested on the theory of anaphylaxis.

Without any knowledge of the active principle of the plants it is doubly hard to understand their mode of action giving rise to almost any hypothesis, anaphylaxis being the most frequently suggested.

The lack of information on primrose poison can only be compared with the confusion which has arisen over the mode of action of this and other poisons. The known susceptibility and immunity of certain persons to these substances so frequently observed by dermatologists are so imperfectly understood that they are apt to be confused with other reactions.

4. Syme: Johns Hopkins Thesis, 1906.
5. Ford: Jour. Infect. Dis., 1907, **4**, 541.

My excuse, therefore, for this preliminary paper is an effort to clarify two past misconceptions, namely:

1. An effort to further the quest for the active poison of *Primula obconica* and to correct our past ideas that this was an oil.

2. An attempt to clarify and prevent the confusion of the vague term, "cell hypersensitiveness," with that better understood and demonstrable reaction, anaphylaxis.

The question of producing an active and passive anaphylaxis, the investigation of the immunity to the primrose, and an attempt to isolate the active principle of the plant, engaged my attention in the following experiments.

EXPERIMENTS

In order to show that primrose dermatitis does not depend on the general irritability of the skin, a reaction such as one often sees in some patients after the application of almost any degree of traumatic or chemical irritant, I applied a leaf of the plant to the arm of a patient who was in the midst of an attack of urticaria and who not infrequently suffered from an idiopathic eczema. Twelve hours later there was no sign of dermatitis or irritation, and the outline of the leaf on the skin was barely noticeable.

For control skin tests I then made an extract of leaves by grinding them up with sterile bird sand in sterile physiologic sodium chlorid solution. For controls I made a similar extract of lily stems and the blooms of narcissus, two flowers that not infrequently produce dermatitis in susceptible handlers. As an additional control I used sterile bird sand and physiologic sodium chlorid solution. These were separately filtered and superficially inoculated into the arms of several susceptible and normal persons. In no case did I get a reaction in the controls, while the primrose extract produced a severe dermatitis in the susceptible patient which spread quite beyond the area of inoculation.

I then attempted to produce active and passive anaphylaxis in two guinea-pigs by an intraperitoneal injection of a sensitizing salt solution extract of the primrose; in two other pigs the sensitizing injection was composed of serum obtained from one of my susceptible patients. Five days later I reversed the injections, this time giving the serum to the primrose animals and the primrose to the serum animals. In one other animal both the sensitizing and anaphylactic intraperitoneal injections, five days' interval, were of primrose extract. In this work only one of the animals died or showed signs of shock the same day the second injection was given. On repetition of the test on another pig, however, the animal lived three days and died not of shock but from what I believe to have been actual plant poison, an indurated abdominal lesion being present similar to that which Ford found in his animals after injecting rhus extract.

In my efforts to learn the part played by the plant protein in the dermatitis, I prepared an extract of the leaves by grinding them up in sterile bird sand and a 10 per cent. salt solution. This was filtered through paper until the solution was clear and was then made very faintly acid by the addition of a few drops of diluted nitric acid, after which it was placed on ice for twelve hours. At the end of this time the solution was heated just to the boiling point, which caused a rather heavy murky precipitate to form. The mixture was then contrifuged for four minutes and the clear supernatant liquid was pipetted off, leaving the precipitate which gave the Millon test for protein. I inoculated a concentrated extract of this precipitate into two scarified areas on the arms of two of my susceptible patients, who were kept under observation for ten days. During this time neither patient experienced the slightest subjective or objective symptom of a skin reaction.

On another lot of leaves I made an effort to isolate an alkaloid. Two extracts were prepared, one being an acidulated water mixture, the other a mixture of ether, chloroform and alcohol. These were allowed to digest twelve hours, after which they were evaporated to dryness over a sand bath.

The residue of both mixtures was tested with Meyer's reagent or potassium mercuric iodid, and showed no evidence of an alkaloid.

I next prepared a decoction of leaves in distilled water which was digested twelve hours. The mixture was then digested six hours with litharge, the precipitate washed to free it from any tannin or coloring matter, then filtered, and the filtrate evaporated without heat. The result of this process was a dry, brownish, deliquescent, coarse powder which under the microscope contained many needle-shaped crystals. A small particle of this powder which was dissolved in sterile water and applied to the right arm of a susceptible patient produced intense edema, irritation, itching, burning and inflammation that extended beyond the area inoculated. This reaction appeared in thirty minutes, increasing in intensity for eight hours, and was well marked thirty-six hours later. This patient did not suffer from dermographia, and the solution did not cause a reaction in normal individuals. I was justified in considering this substance as a crude glucosid.

Another lot of leaves were extracted with alcohol, let stand three hours and the alcohol distilled off. The residue was extracted with acetone for three hours, after which the mixture was allowed to evaporate spontaneously. The result of this was an oleoresinous mixture which caused an intense irritation when applied to the left arm of the same patient, but which was unlike the glucosid mixture in that it acted slower, was quiescent several hours and not until twelve hours later did the subjective and objective symptoms equal these on the other arm. This oleoresinous compound did not irritate the skin of normal patients, and part of it was frozen in ice and salt to see if it contained a stearopten, such as menthol in peppermint. No such crystal formed. The oleoresin was now digested in alcohol and acetone solution for three days, after which it was filtered and the filtrate evaporated to dryness over a sand bath. After the filtrate had been evaporated to a dark brown powder eliminating any oil, a particle of the powder was dissolved in diluted alcohol and applied to the arm of a susceptible patient. This called forth a severe dermatitis which spread beyond the point of irritation. The active poison of the oleoresin was most probably an acid.

COMMENT

We, therefore, most probably have two active poisons in *Primula obconica*, one obtained by precipitating an extract with litharge and of a glucosid nature, the other a slower acting poison which appears to be an acid constituent of the resin, both, however, independent of any oil.

Many of the cases of dermatitis venenata reported in recent years have been ascribed to anaphylaxis until almost every unusually severe skin and systemic reaction that occurs during the administration or application of a drug is cited as an instance of this disturbance. The frequently seen skin reactions to quinin,[6] iodin,[7] iodoform,[8] mercury and salvarsan have been cited by some as examples of the reaction. One is irresistibly struck by the clinical similarity of these reactions to the mucous membrane and skin hypersensitiveness seen in hay-fever and tuberculosis, both of which are supposed to be examples of anaphylaxis. In the cases of susceptibility of certain individuals to primrose poison we are also dealing with cases of hypersensitiveness which certainly more closely coincide with our conceptions of true anaphylaxis than many of the reactions cited above. The plant at least contains a proteinlike substance which in this respect, unlike iodin, mercury, salvarsan and other chemicals, fulfils one of the rudimentary requirements for a true specific anaphylaxis.

I have shown, however, that the skin irritability is not due to protein sensitization; therefore the reaction which may superficially resemble an anaphylactic reaction in reality has no direct relation to it.

In other words, we have gone far astray in our efforts to explain drug hypersensitiveness, and in our haste have distorted the theory of the reaction of anaphylaxis in order to try to make it explain a totally different phenomenon. Some such confusion resulted before the terms contagion and infection were better understood and more clearly defined.

It seems timely, therefore, to sound a word of warning against this misnomenclature and to recall to mind that while anaphylaxis is not entirely understood there are certain fundamental requisites necessary in order to produce a true reaction.

Richet[9] was one of the first to suggest that anaphylaxis depended on the previous injection into or the presence in the body of some sensitizing substance or antigen. Another demonstrated fact is that such an exciting antigenic substance must necessarily be of a protein nature. The suggestion that pure lipoids, unmixed with proteins, cause antibodies has been refuted by Miller,[10] Richet, Thiels,[11] and others. Zeiler[12] questions the validity of experiments that tend to show that certain chemicals combine with the proteins of the blood or tissues to form a foreign protein and cause hypersensitiveness. Zinsser[13] says that to date not a single exception to this has been found, nor is any to be expected. The sole contester of this being Ford,[14] who could not have produced antibodies to his glucosid for the reason that he was not working with a pure glucosid but a compound substance. Von Adelung[15] was unable to duplicate Ford's results, while Stevens and Warren[16] and MacNair[17] claim that the substance he was dealing with was not a true glucosid or a compound of rhamnose, gallic acid and fisetin, but an unknown compound. The recent report by Novy and DeKruif,[18] which tends to show that anaphylactic shock can be produced in an agar sensitized animal by a second injection of agar or even distilled water, is another effort to prove the nonspecificity of the reaction. A somewhat similar line of reasoning regarding Witte's peptone was advanced by Biedel and Kraus.[19] Different lots of this substance, however, were afterward found to contain toxic and nontoxic qualities which Brieger[20] says accounts for the conflicting anaphylactic results. The origin of both Witte's peptone and agar, of course, throw more doubt on such reports. Novy and DeKruif in comparing agar with Witte's peptone apparently do not recognize this.

Zinsser states that the analogy between cases of drug hypersensitiveness and the phenomenon we classify as anaphylaxis is a striking one, but he agrees with Friedman[21] that they depend on quite different processes. For instance, in drug hypersensitiveness, increased and continued administration or application

6. Boerner, Fred: A Skin Reaction to Quinin, THE JOURNAL A. M. A., March 24, 1917, p. 907.
7. Friedberger: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1912, **12**, 241.
8. Block: Ztschr. f. exper. Path. u. Therap., 1911, **9**, 509.
9. Richet: Compt. rend. Soc. de biol., 1898.
10. Miller: Jour. Path. and Bacteriol., 1913, **17**, 249.
11. Thiels: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1913, **16**, 160.
12. Zeiler: München. med. Wchnschr., 1912, **59**, 401.
13. Zinsser: Infection and Resistance, p. 307.
14. Ford: Jour. Infect. Dis., 1907, **4**, 551.
15. Von Adelung, Edward: An Experimental Study of Poison Oak, Arch. Int. Med., February, 1913, p. 148.
16. Warren: Jour. Am. Pharm. Assn., 1907, **80**, 518.
17. MacNair: Jour. Infect. Dis., 1917, **20**, 485.
18. Novy, F. G., and DeKruif, P. H.: Anaphylatoxin and Anaphylaxis, THE JOURNAL A. M. A., May 26, 1917, p. 1524.
19. Biedel and Kraus: Wien. klin. Wchnschr., 1909, No. 11.
20. Brieger: "Die Ptomaine," 1, p. 14, and Hammersten, Physiological Chemistry.
21. Friedman, quoted by Zinsser: Infection and Resistance, p. 408.

of the drug increases the reaction, while in true anaphylaxis the reaction, if not leading to sudden death, decreases and finally ceases with continued administration of the antigen. Also in drug sensitization we are dealing with a primary poison against which in the reacting animal a neutralizing substance is formed, a condition quite different from that seen in hypersusceptibility against primarily harmless proteins. Zinsser further states that in true anaphylaxis not only are specific antibodies present in the blood, but the production of passive anaphylaxis in animals shows that this antibody, if originating and residing in the fixed cells of the body, must necessarily also circulate in the blood stream.

In primrose dermatitis, although an example of hypersensitiveness to drugs and chemicals, the requisites of anaphylaxis are not fulfilled; and while superficially similar, the confounding of the two quite different processes is incorrect. As I have shown in primrose dermatitis, it is not possible to sensitize an animal either actively or passively with the poison of the plant, that no specific amboceptors are present in the blood of susceptible patients, that the protein of the plant has nothing to do with the reaction, and that this being the case it is as impossible to produce an antitoxin to the poison of the plant as it is to produce a condition of artificial specific sensitization.

The cases of skin "anaphylaxis" above cited seem to be examples of cellular or epithelial irritability, and being so are considered symptomatic expressions of local cell hypersensitiveness established spontaneously and not dependent on toxins or any immunologic process. The antibodies, if concerned in the reaction, are present only in the sensitive cells, the protoplasm of which, Block showed, has an increased affinity for that particular poison.

I did not attempt to produce a protein from the bloom of the plant, as it has been proved that the active poison is secreted from glandular hairs of the leaves, and that poison has no relation to a protein for two reasons: 1. A protein made from the leaves and stem causes no skin reaction in hypersensitive patients. 2. The poison is soluble and can be extracted by absolute alcohol, which does not dissolve proteins.

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ABSTRACT OF DISCUSSION

Dr. Philip Kilroy, Springfield, Mass.: While this paper needs no discussion, it should not be let pass without an expression of gratitude to the author. It is a demonstrative paper which should get rid of the tendency to give mystical explanations of very commonplace facts. The tendency to look for a mystical anaphylactic reaction has gone so far that I expect soon to be told that the sore caused by a burn is the anaphylaxis of some previous burn. Those of us who have been stung by a nettle or a wasp know that the result is only the irritation of the skin by an irritating substance. That the result is greater in one person than in another requires no explanation other than that assigned by Dr. Simpson. Some people will get a violent dermatitis from a sun exposure that will not even tan the skin of others.

Dr. Walter J. Heimann, New York: I regret that Dr. Simpson did not carry his work to what seems to me to be completion. His work has been confined to leaves and stems, while I think he should have done something on pollen, and perhaps on petals. I believe as he pursues his investigation he will take up these features. In using the word "hypersusceptible" I think Dr. Simpson has weakened his own case. Hypersusceptibility we have assumed to be due to previous exposure to an alien protein. What Dr. Simpson means, I believe, is an ordinary susceptibility.

In any kind of chemical dermatitis the majority of people do not react to the pathologic agent. Those who react are considered susceptible, and the others are not considered susceptible. Those who react very strongly might be considered hypersusceptible. In spite of Dr. Simpson's endeavor to be clear, his use of the word is unhappy, as it refers to allergic phenomena, which in his experiments are not present.

Dr. C. Augustus Simpson, Washington, D. C.: I undertook this work in order to clear up the confusion which has resulted from the reports of iodin and quinin eruptions, which are cited as examples of anaphylaxis. If we understand that true anaphylaxis depends on a presensitization of the individual with a protein, then it is obviously impossible for a chemical, alkaloid or a glucosid to perform this function.

In regard to the question asked by Dr. Heimann, I will say that I did not work with the pollen of the flower for two reasons: First, the poison that causes the dermatitis does not reside in the flower or pollen, but is a product of the glandular hairs of the leaves; second, the poison can be extracted from the leaves by digesting them in absolute alcohol, which does not dissolve or extract proteins. In view of the work of Wells and Osborne on plant proteins, I have no doubt that a true protein could be extracted which would naturally produce a true anaphylactic reaction in animals. This, however, is not the object of this paper. I have tried to show that the well-known specific susceptibility to the primrose (dermatitis) has no relation to anaphylaxis.

THE PREVENTION OF ENDEMIC TYPHUS IN CALIFORNIA

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During early civilization, typhus fever was the predominant disease, whereas typhoid was of secondary prevalence. With the advancement of civilization, however, and the adoption of personal hygiene, typhus has receded. On the other hand, with the increasing density of population and the resulting contamination of food and water supplies, typhoid has become pandemic. Except under war conditions, epidemics of typhus are now rare, although the disease is endemic on the Great Plateau of Mexico, in parts of Ireland, France and Russia, in Algeria, Egypt, Hungary and certain provinces of the Balkan States. The recent Serbian epidemic, still fresh in our memories, is an instance of war-borne typhus.

TYPHUS IN EASTERN UNITED STATES

The three chief visitations of this disease to the United States occurred in New York in 1881 and 1882, and again in 1892 and 1893, and in Philadelphia in 1883. Sporadic cases have not been uncommon in our seaports. Furthermore, it has recently been shown that the syndrome known as Brill's disease is in reality typhus fever. In 1909, Dr. Nathan E. Brill reported 200 cases of an acute infectious disease of unknown origin observed by him in the wards of the Mount Sinai Hospital. He had previously reported seventeen cases of the same disease. The important phases of the disease are thus summarized by Brill:[1]

An acute infectious disease of unknown origin and of unknown pathology characterized by a short incubation period

1. Brill, Nathan E.: An Acute Infectious Disease of Unknown Origin: A Clinical Study Based on 221 Cases, Am. Jour. Med. Sc., April, 1910.

(four to five days), a period of continuous fever, accompanied by intense headache, apathy and prostration, and profuse and extensive erythematous maculopapular eruption, all of about two weeks' duration, whereupon the fever abruptly ceases, either by crisis within a few days or by rapid lysis within three days, when all symptoms disappear.

When Brill's second paper appeared in 1910, Anderson and Goldberger,[2] of the United States Public Health Service, had recently returned from the City of Mexico, where they had been making a study of Mexican typhus or "tabardillo." These investigators were impressed with the similarity between the disease described by Brill and typhus fever as observed by them in Mexico. They were given the opportunity of drawing blood from a patient with Brill's disease in the wards of the Mount Sinai Hospital. This was inoculated into monkeys. One of these animals, after ten days' incubation, developed a fever which reached its maximum six days later, and fell by rapid crisis fourteen days after the rise began.

To determine the relationship of typhus fever to Brill's syndrome, these workers tested the susceptibility of animals that had recovered from Brill's disease to Mexican typhus, and the converse of this. It was found that an attack of Brill's disease in the monkeys conferred on them immunity to Mexican typhus, and that Mexican typhus conferred on them immunity to an attack of Brill's disease. It was thus shown that Brill's disease, so called, and typhus are identical, and since the endemic typhus of New York, with which Brill worked, was regarded as of European origin, it was concluded that the typhus fever of Europe and that of Mexico are identical.

Cases of continued fever of more than six to seven days' duration were taken from the records of the Massachusetts General Hospital, and from this investigation Roger Lee concluded that Boston and vicinity gave a ratio of one case of typhus to forty-seven of typhoid, a proportion probably prevalent in many of the Eastern coast cities. In 1912 there were thirty-six cases of typhus treated at the Mount Sinai Hospital and nineteen at the Jewish Hospital. Moreover, cases were reported as far west as Chicago and Milwaukee. During 1911 and 1912, J. E. Paullin[3] observed seven cases of typhus in Atlanta which were reported by him. With a more accurate identification of this disease it has become evident that it has not disappeared from the United States, but, on the contrary, it has been present more or less continuously, especially in the large Eastern cities, since the epidemics of the eighties and nineties.

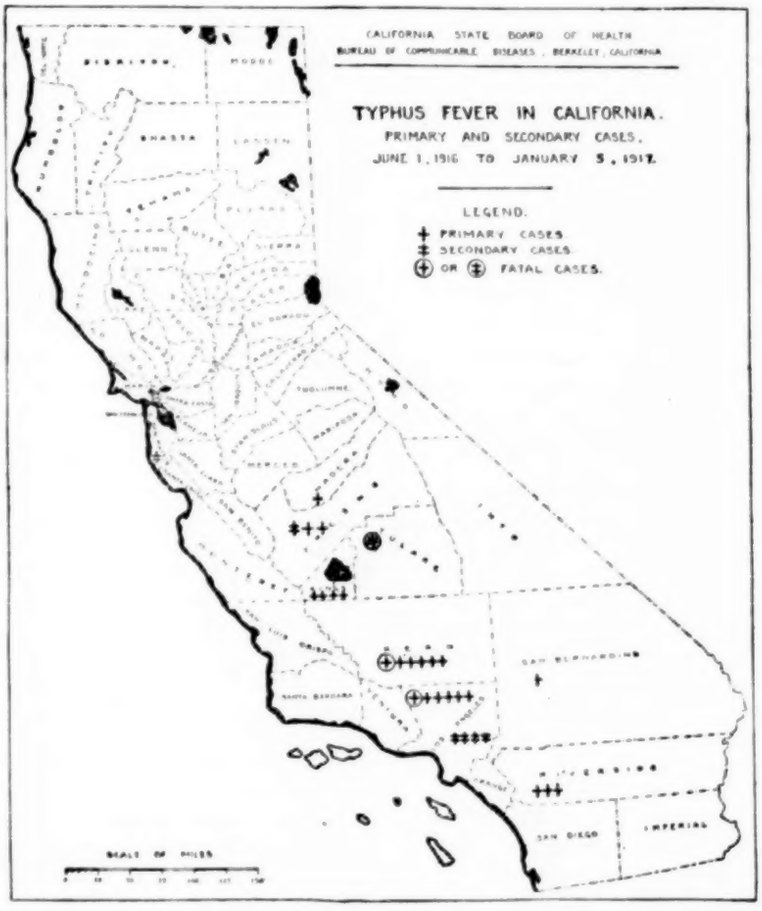

Fig. 1.—Location of primary and secondary cases of typhus in California.

TRANSMISSIBILITY

In the latter part of 1909, Nicolle infected an African ape with the blood drawn from a human patient with typhus.[4] Shortly after this announcement he reported the successful transmission of typhus from an ape to a monkey by the bite of a louse.[5] From the epidemiologic conditions which prevailed in Tunis, he was able to rule out the flea and the bedbug as carrying agents. In February, 1910, Anderson and Goldberger[6] reported the transmission of typhus from a human case to a monkey by means of the body louse. Other experiments with the flea and the bedbug were negative, and those with the head louse — *Pediculus capitis* — though suggestive, were not conclusive. During the same year Rickets and Wilder,[7] in two experiments, transmitted typhus to a monkey by the bite of the body louse. In one instance the virus was transmitted from man to monkey, in the other from monkey to monkey. Furthermore, these investigators infected a monkey with typhus through the introduction of the abdominal contents of infected lice through small incisions. The achievements of Nicolle, and the confirmation of his findings by other workers, have demonstrated the mode of transmission of typhus fever and made plain the practical methods of preventing the disease. These, when intelligently applied, have worked remarkable results.

2. Anderson, John F., and Goldberger, Joseph: The Relation of So-Called Brill's Disease to Typhus Fever, Pub. Health Rep., Feb. 2, 1912, p. 149.

3. Paullin, J. E.: Typhus Fever in Atlanta, Ga., Pub. Health Rep., Jan. 10, 1913.

4. Nicolle, C.: Reproduction experimentale du typhus exanthématique chez le singe, Compt. rend. Acad. d. sc., 1909, **149**, 157.

5. Nicolle, C.; Comte, C., and Conseil, E.: Transmission expérimentale du typhus exanthématique par le pou du corps, Compt. rend. Acad. d. sc., 1909, **149**, 486.

6. Anderson, John F., and Goldberger, Joseph: On the Infectivity of Tabardillo or Mexican Typhus for Monkeys and Studies on its Mode of Transmission, Pub. Health Rep., 1910, **25**, No. 7.

7. Ricketts, H. T., and Wilder, Russell M.: Further Investigations Regarding the Etiology of Tabardillo, Mexican Typhus Fever, THE JOURNAL A. M. A., July 23, 1910, 309.

Thus, according to Nicolle, in 1909 there occurred in Tunis 838 cases of typhus fever; but in 1912, after efforts had been put into effect to control the disease in the light of recent research, there occurred only twenty-two cases. The only prophylactic measure resorted to was the destruction of lice found on the patient and his clothing and on persons and clothing in the vicinity of the patient suffering from typhus. The successful campaign of the American Red Cross, under the leadership of Dr. Richard P. Strong, against typhus among the Serbian troops by the use of the coal oil bath and the steam sterilization of clothing, is a remarkable achievement based primarily on the results of Nicolle's original investigations.

That the body louse is the transmitter of typhus has received ready support from students of the epidemiology of this disease. The spread of typhus presents all the characteristics of an insect-borne disease. Typhus fever prevails in epidemic form only in overcrowded, filthy surroundings. To quote from Hirsch, "The history of typhus is the history of human wretchedness."

TYPHUS IN CALIFORNIA

In the spring of 1916, it was reported that in Mexico thousands were afflicted with typhus fever. The civil war in that country, with its accompanying wretchedness, had led many of the inhabitants to emigrate to the United States. California had been free from typhus for years until the summer of 1916, when there occurred twenty-four cases, twenty-one of which were investigated. With the exception of one case, all the patients were of foreign birth and tongue, making it difficult to obtain accurate data concerning their subjective symptoms.

In general it may be said that prodromal symptoms were absent or insignificant. In about half the cases the fever was ushered in by a chill. The rise in temperature was rapid, reaching its height (from 103 to 105 F.) about the third day. Mild delirium, muscular weakness and intense headache were early symptoms. With the rise in temperature, the face became flushed and the conjunctivae injected, developing later into conjunctivitis. There was no coryza or sore throat; hemorrhage from the nose and ears occurred in one case, and that late in the disease. A mild cough and moist bronchial râles were not uncommon early symptoms. As the fever reached its height, there appeared the typhus rash on the abdomen, then on the chest, back, arms, thighs, forearms and legs. Within thirty-six hours it was fully out and remained until recovery or death. The spots varied in size, from one tenth to one half inch in diameter. They were irregular and had a fairly distinct outline, but were not perceptibly elevated. During the first few days the rash may be referred to as a mulberry rash, and it will disappear on pressure; this later becomes a darkish-brown maculopetechial rash, and does not disappear on pressure. As shown by von Franckel, the characteristic exanthem is primarily a periarteritis which leads to stenosis and by thrombosis formation to circumscribed disturbances of the circulation, and to interstitial hemorrhages which convert the inflammatory reseolae into petechiae. The interstitial hemorrhages prevent the disappearance on pressure of the typhus spots. The fever reaches its maximum in about three days, remaining elevated at from 103 to 104 F. without marked morning remission for about fourteen days, at the end of which time it falls by crisis or rapid lysis. As stated by Dr. C. C. Pierce of the United States Public Health Service, "the most dependable symptoms are the rash, headache, bronchitis, mental confusion, dry coated tongue, nervous tremor and continuous fever." From eight of the patients in the cases investigated, blood was drawn and injected into guinea-pigs. As in five of the cases blood was drawn after the crisis, no temperature was produced in the animals inoculated from these. In the other three the guinea-pigs developed, at the end of an incubation period of from ten to twelve days a temperature of several days' duration. All the strains of typhus fever so isolated were carried through four generations.

The disease is not fatal in guinea-pigs; an elevation of temperature and slight indisposition are the only signs of illness. We have observed that typhus fever produces no distinct pathologic condition in guinea-pigs such as is found in Rocky Mountain spotted fever. In our laboratory strain of spotted fever, isolated from the Ventura County patient of July, 1916, and carried through the eightieth generation at the State Hygienic Laboratory, the following lesions are noted: enlarged axillary and inguinal lymph glands, swollen spleen, and in males, orchitis with occasional superficial necrotic areas.

The eruptions of these two diseases, more especially the character and development of their skin lesions, are very similar, and in the absence of the chief aid in differential diagnosis — namely, a definite history of a louse or a tick bite — the results obtained through guinea-pig inoculations will clear up the diagnosis.

Early in the spring of 1916, typhus fever began to appear in California among newly arriving Mexican immigrants employed in railroad section camps. From June 1 to Oct. 1, 1916, there had occurred in California twenty-six cases of typhus, with one fatality. Five of these cases were secondary, and all, with the exception of two, were among railroad employees. Owing, however, to the increasing number of cases in five southern counties of California, so that during September alone there were reported fifteen cases, the state board of health viewed with apprehension the possibility of extension of typhus fever from these immigrants to the larger cities where it might become endemic. The situation began to call for more intensive control measures to prevent the disease from becoming a menace to the California centers of population. The expediency of this procedure is shown by a study of the disease in Eastern cities, where endemic typhus has existed since the early eighties. It was necessary, however, before enacting regulations, to review the situation as a whole; naturally, methods employed for its control would have to depend on conditions peculiar to this state. As already stated, most of the cases were primary; they had occurred chiefly among recently imported railroad Mexican section laborers, and there had been five secondary cases. Furthermore, there was an increasing number of cases each succeeding month. The appearance of the secondary cases made it evident that the transmitting agent of the disease (the body louse) was prevalent in section camps. Actual investigation of forty-four camps showed a 60 per cent. head louse and a 35 per cent. body louse infestation. This condition among immigrant Mexican laborers and their families was directly due to the unhygienic living conditions in war ridden Mexico

whence they had come. Up to October, the state required merely the usual quarantine measures on all reported cases and their contacts. With these regulations in force, however, the number of typhus cases continued to increase so that in September alone there were fifteen cases. As Mexico was the only available source of labor, it was decided to urge the cooperation of the railroads in applying modern preventive measures in the control of typhus rather than to put in force the older procedure of prohibiting the importation of such labor.

The situation was presented to the railroad authorities, and appreciating that modern science provided an alternative to a ban on labor, they heartily cooperated in carrying on the special typhus control regulations. These included: first, the enforcement of louse-eradicative measures in the section camps; second, the establishment of observation camps, and third, the reporting to the state of all new arrivals from Mexico.[8] The regulations provided for bunk house sanitation, weekly sterilization of bedding and clothing, gasoline saturation of all footwear, and a weekly bath with equal parts of kerosene and warm water for all camp occupants, this to be followed by a complete change of clothing; these measures to be enforced and supervised by the foreman of each section gang.

The deputizing of the section foreman as the local supervisor of these control measures was made because he was at all times a resident at the section camp, and therefore cognizant of the extent to which the delousing regulations were being complied with by the section laborers. Moreover, the large number of camps and the wide area over which they were scattered made the matter of even a single visitation by a delousing train impracticable from the standpoint of expense, efficiency and time. The section foreman control method had, therefore, the advantage that all the section gangs could be deloused, not only immediately, but frequently, the foreman being directly responsible for the enforcement of the regulations. The railroads made this matter not merely one of expediency but of educative value as well, by printing the regulations in Spanish and in English, and by posting them in each section camp.

In the observation camps all newly arriving Mexicans were kept for a period of fifteen days — the incubation period of typhus fever. These camps consisted of a dozen pitched tents or of box cars, one guard tent, two foreman's tents, a box car or extra large tent for bathing and delousing purposes, a water car, two commissary cars and three or more modern, well screened, well ventilated toilets. Two or more guards were stationed at such a camp. During the first month there were a number of escapes from these camps, whereupon the railroad companies provided railroad police guards, thus preventing the scattering of possible typhus contacts. From Oct. 15, 1916, to March 1, 1917, a total of 2,355 men were detained and deloused in the railroad observation camps. The several importing companies furnished the state, from El Paso, the name of each immigrant and the observation camp to which he had been sent. The railroads made a similar report relative to the date of his arrival at and release from this camp.

The purposes of these observation camps were two: first, to centralize all possible imported typhus cases; second, to provide a place where the railroads' Mexican immigrants could be deloused before being distributed along the lines of the railroad traffic. It should also be appreciated that the several railroads within the state at once lent their hearty cooperation in carrying out the delousing regulations in the section camps, and in addition, each railroad depending on imported labor maintained an observation camp, although such maintenance was a difficult problem from an operative standpoint.

It will be noted that these observation camps, established in October, 1916, served the same purpose as do now the federal delousing stations which were put into operation Jan. 1, 1917. When in view of these control measures instituted at the border by the United States Public Health Service, the advisability of modifying or abolishing the special regulations was suggested, it became necessary to determine whether or not they had served their purpose — that of minimizing louse infestation in the section camps. Obviously, should a patient with typhus in the incubation period — although freed from lice at the border — enter a louse-infested camp, his infestation would result in infected lice and the possibility of secondary cases.

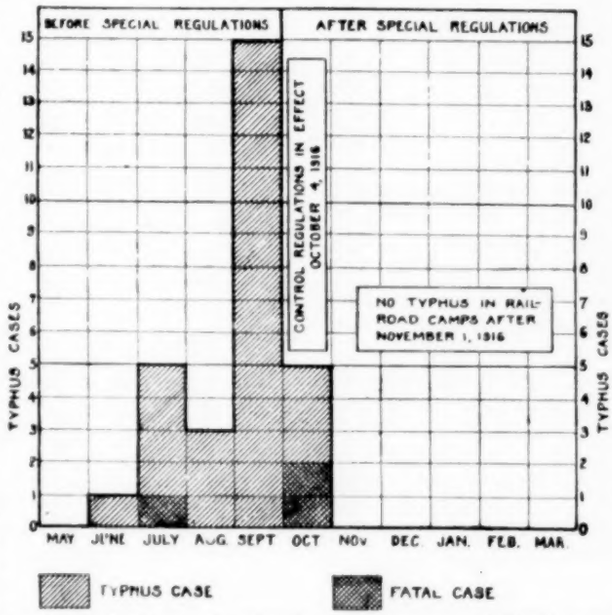
BEFORE SPECIAL REGULATIONS
AFTER SPECIAL REGULATIONS
CONTROL REGULATIONS IN EFFECT OCTOBER 4, 1916
NO TYPHUS IN RAILROAD CAMPS AFTER NOVEMBER 1, 1916
TYPHUS CASES
MAY JUNE JULY AUG SEPT OCT NOV DEC JAN. FEB. MAR
TYPHUS CASE
FATAL CASE

Fig. 2.—Incidence of typhus in railroad camps in California and results following enforcement of special state control regulations.

No further cases of typhus having occurred in railroad section camps after Oct. 25, 1916, about March 1, 1917, there were reinspected thirty-two section camps, occupied by 824 individuals. Among these, less than 1 per cent. showed evidence of head lice, while no body lice were found. The observation camps were also inspected, and the remarkable cleanliness of some very recent arrivals therein, as contrasted with those imported prior to Jan. 1, 1917, evidenced the value of the efficient delousing work done at the border by the United States Public Health Service.

Up to the time of border control, the state's campaign necessitated the following field work: twenty-four field investigations covering the examination of 518 railroad Mexican section camps, and the inspection of 5,042 men, women and children.

8. Cumming, James G.: Special Regulations for the Control of Typhus in Railroad Section Camps, Month. Bull., California State Board of Health, October, 1916, p. 202.

In comparing the typhus situation before and after the institution of the special control regulations, the records showed that from June 1, 1916, to Oct. 1, 1916, four months, there had been twenty-four cases, of these, five secondary; while in the ensuing period from Oct. 1, 1916, to March 1, 1917, five months, there had been only seven cases, of these, one secondary case. Five of these had occurred in October, and the remaining two were nonrailroad cases direct from Mexico. Among the thirty-one cases there had been three deaths, giving a mortality of 9.7 per cent.

The necessity for the control measures taken in October by the state is shown by the increase in the typhus incidence; for, while in June, July and August there had occurred only nine cases of typhus, the record for September alone was fifteen cases. The effectiveness of the state's control measures is clearly demonstrated in that shortly after these measures were applied the typhus incidence dropped to five cases in October, none in November, one in December, and one Jan. 4, 1917, the latter two being the nonrailroad cases previously referred to. Since Jan. 4, 1917, no case of typhus fever has been reported in California. In October, 1916, there was louse infestation to the extent of 35 per cent. for *Pediculus vestimenti* and 60 per cent. for *Pediculus capitis;* while the March 1, 1917, reinspection showed no body lice and only 1 per cent. head lice. It was therefore concluded that:

1. Louse infestation in railroad section camps had been reduced to a minimum.
2. All the railroads should be requested to continue their supervision of camp hygiene.
3. The federal delousing work at the border made no longer necessary the maintenance of observation camps as delousing stations.
4. Imported sporadic cases of typhus might occur, but, under present conditions, there should be no secondary cases.
5. The special typhus regulations for railroads had accomplished their purpose and were therefore no longer necessary.

This received the approval of the state board of health, and the regulations were accordingly abolished at its meeting in March.

Acupuncture Vaccination Method.—According to Dr. H. W. Hill (*Am. Jour. Pub. Health*, March, 1917) acupuncture vaccination is thus performed: The arm is washed with soap and water, then with alcohol and finally with ether. A small drop of vaccine is deposited on the clean surface. The vaccinator's hand is closed on the arm from behind so as to draw the skin tight in front, and a sewing needle point, held slanting nearly parallel with the arm, is pressed against the skin through the drop of vaccine. Then it is that that one-thousandth inch of the point snicks through the upper layer of the skin, carrying the vaccine with it. The needle is instantly withdrawn, and similar punctures are made beside each other until a dozen punctures are made in the space of one-sixteenth square inch or less. With a bit of gauze the surface vaccine is removed. Three sets of punctures are advised at the angles of a triangle, each side of which is 1 inch. A strip of gauze may be pinned to the inside of the shirt sleeve; no other dressing should be used. In persons who are still protected by a former vaccination or by having had smallpox, the punctured surface will redden, swell slightly and become somewhat itchy for a day or two immediately following the puncture. This is the anaphylactic reaction. In persons not so protected, the puncture spot will redden and swell in four or five days, and a smooth, pearly button about the size of a large pea will arise, which in about ten days will separate, leaving a small round scar.

LYMPHATIC-NODULAR KERATOCONJUNCTIVITIS (PHLYCTENULES) *

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Phlyctenular keratoconjunctivitis has always impressed me as a distinct ocular evidence of a systemic dyscrasia; in other words, these nodular exudates indicate a weakened, anemic constitution. The impoverished patient requires more than general tonics, something more definite and specific in the line of treatment. As an increased heart beat would be suggestive of some abnormality, so I take this eye condition to be a symptom of some abnormal constitutional condition. As interstitial keratitis is a manifestation of inherited syphilis, these nodular lymphoid infiltrates are evidences of a strumous diathesis or tuberculosis — if not tuberculosis, then something very similar, bearing in its symptomatology a striking resemblance to tuberculosis. These nodular exudates are warnings, and not outspoken evidences of tuberculosis. The absolute certainty, as clinical evidence of it, must remain unanswered for the present. The proof is not sufficient to warrant such an assertion, yet in the large percentage of these cases it distinctly gives evidence of an intimate association with tuberculosis. We all know of tuberculous cases undergoing spontaneous arrest, and these may be some of the cases that give symptoms accompanying tuberculosis but not made manifest by our present methods of examination. Of course further evidence must be forthcoming, but I believe a proper interpretation of this local sign will be a great aid to us in saving and restoring vision.

Since the vision which has been lost depends so much on the location of the resulting corneal opacity, it is not possible to generalize in regard to it.

It is by a thorough and complete physical examination of all cases showing these nodular lymphoid deposits on the corneoscleral border, especially when ulcerating, that we can get some evidence of tuberculosis in one of its many manifestations. In some of the thirty-nine cases which form the basis of this study we have distinct and clear evidence of tuberculosis.

I would not style the nodules tuberculous simply because giant cells are seen in some of their sections. If organisms are found they are a secondary infection, due to the lymphoid cellular exudates breaking down. This nodular cellular infiltrate is a manifestation of a disease and not the cause of disease. There is an underphysical tone, a latent tuberculosis, that causes nodular infiltrates to appear on the corneoscleral border. To me it is an exhibition of a tuberculous condition or one very closely allied to tuberculosis — call it scrofula.

In seven of the thirty-nine cases, pulmonary tuberculosis was found. I hold that when tuberculosis is fully established we shall not find this eye condition. These nodular exudates are seen only in a beginning tuberculous infection and not when tuberculosis is fully established. It is more of a manifestation of tuberculosis, especially in childhood, though we saw these cellular infiltrates in four cases in adult life.

In sixteen cases we found some form of tuberculosis. Fourteen of the patients had tuberculous adenitis.

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* Read before the Section on Ophthalmology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

One of the sixteen had tuberculous wrist joint; one had a tuberculous hip.

Eight of the patients, while not having positive pulmonary signs, had suggestive lung involvement, as apical moist râles, impaired notes, dull percussion, and spotty infiltrates. One had an indurative mediastinitis. Three, from roentgenographic reports, showed upper apical infiltration. One had tuberculous arthritis.

Thirty-two of the patients had positive von Pirquet reactions; fifteen of them +, ten + +, four + + +, and two had a slight positive reaction.

Dr. J. H. Elliott[1] of Toronto says, "It has been our experience that every child that has phlyctenular conjunctivitis has given a tubercular reaction."

In four of the cases the tubercle bacillus was found in the sputum. Three of the patients were sent to the state sanatorium for tuberculosis.

Eighteen of the patients had adenoids and diseased tonsils. The interesting point about these cases was the fact that in microscopic sections the tubercle bacillus was found in six cases.

The eczema seen in these cases is caused by the profuse lacrimation, and the constant epiphora is the irritant to the skin and nares. Nasal obstruction aids the eczema and the excoriation of the skin surfaces. Improper nasal respiration in the upper air passages, caused by congestion and intumescent turbinals, prevents the proper flow of tears to the nasal cavity. The mucous membrane of the tear duct and its sac becomes swollen and the lumen is narrowed, so that the tears do not have proper drainage to the nose. The eczema is a secondary factor, an association and not a cause of the eye condition.

Thirteen of the patients had a negative Wassermann reaction. Two had positive reactions; one of the latter patients, aged 20, had a nodular exudate on the conjunctiva with slight photophobia, lacrimation and a negative von Pirquet reaction. Roentgenoscopy revealed infiltration beneath both clavicles. Because of the negative signs of a tuberculous involvement, and of a positive Wassermann reaction, the patient was placed on antisyphilitic treatment. The condition of the second patient, aged 25, was similar to that of the first, and the same treatment was given.

In seven of the cases some member of the family had tuberculosis, four in parents (three paternal and one maternal), two in sisters, and one in a paternal uncle.

The age of these thirty-nine cases varied from 1 year to 30. There were thirty females and nine males. Eighteen patients were white and twenty-one colored. The cornea and conjunctiva were involved in thirty cases. Corneal ulceration was present in eighteen. The conjunctiva was involved in nine cases. Both eyes were involved in twenty-one cases, the right eye twenty-nine times and the left eye eleven times.

When local treatment was required for corneal ulceration we used atropin in 1 per cent. solution and protective glasses. When there was no corneal ulceration, sodium borate drops were ordered.

I have carefully gone over the cases and itemized each particular case for study: After the eye was seen and diagnosis made, the patient was referred to the Phipps Clinic for Tuberculosis for a physical examination and a skin test. It is needless for me to say that the work in that department is so thorough that the diagnosis will not be questioned. In fact, when one is working on a special subject, sometimes the enthusiasm gets the better of discretion, and one is liable to err. The reference of these cases to another department is bound to result in more accurate reports, and the results in the long run will be more valuable.

With their varied experience, the physicians in this clinic are unusually competent to make physical examinations and are especially skilled in giving the tuberculin injections. The dosage, temperature, pulse and respiration are followed more accurately. It is important to know how to administer tuberculin. It is a dangerous drug; and unless used skilfully, more harm than good will come from its administration. The minimum dose was 0.000001 gm.; to the small dose often repeated I think is due the success in giving tuberculin. The tuberculin used was the bouillon filtrate and was made in the Phipps Clinic for Tuberculosis. I feel confident that had it not been for their skilled and expert administrations of tuberculin, the results would not have been what they are. Unless the ophthalmologist has had experience in this line of work, it is better to have the work done by men who are doing that kind of work every day; they are more capable of judging the proper dosage, and the interval in time.

At least forty injections are necessary in an average case, and prolonged tuberculin injections a necessity for good results. Any rise in temperature is an indication of too large an amount of tuberculin, and with any redness or soreness at the point of injection, the dose should be diminished. Small doses often repeated constitute the treatment; this is so important that I wish to lay special emphasis on it.

In some of the thirty-nine cases we had a positive von Pirquet reaction, but the physical examination showed "no active pulmonary signs"; nevertheless we tried tuberculin to see if it improved the ocular condition. We were surprised in seeing the nodular exudate disappear. To satisfy the patient, sodium borate drops were ordered. This improvement in the patient I attribute to the tuberculin. These cases show no manifest tuberculosis, but probably have some latent form. If tuberculin improves the condition, there must be some association between the nodular exudates and tuberculosis.

When the patient was under tuberculin treatment, relapses were very few; in fact, there was only one distinct case, and that was very slight. When other methods were employed, recurrent attacks were often seen.

Some of the patients returned for observation; the eyes appeared in good condition, there were no active inflammatory signs, and the general remark of the patients was that they were much improved.

It is necessary in some cases and at certain intervals to give another course of tuberculin injections. By this means we are more than able to hold the corneal ulceration in check and prevent opaque areas through the cornea. I feel confident that with the proper administration of tuberculin, accurate taking of pulse, temperature and respiration, and the general condition kept under surveillance, we can get good results from this way of handling the cases. It is far from perfect, but better than giving general tonics, with no special medicine given for a special ailment. The word "tonic" would not carry far if one were questioned why and for what reason the tonic was given.

1. Elliott, J. H.: Tr. Natl. Assn., Study and Prev. Tuberc., 1916, p. 45.

Norman[2] says:

Under tuberculin treatment the process of ulceration was arrested very much more quickly than by ordinary methods alone, and the resulting area of corneal opacity was correspondingly diminished. Another advantage is a remarkable freedom from relapse, but to ensure this we find it necessary to give the full course of fourteen injections in all cases.

The eyes were carefully observed and notes made after each injection, stating progress, or retrogression, or whether the eye was quiet.

The Department of Laryngology handled the cases of adenoids and tonsils. This removal was a great aid in the treatment. The examination of the adenoids and tonsils for microscopic diagnosis was thorough. Finding six cases with tubercle bacillus I think is exceptionally interesting. Their interest in the cases made the examination thorough and complete. Six cases were found positive for tubercle bacilli in the sections.

SUMMARY

I am not claiming this manifestation as a certainty of tuberculosis, but that in a majority of cases, if we use all methods of diagnosis we will find some evidence of symptoms that go with tuberculosis. In the seven cases showing active pulmonary signs (four of the patients having the tubercle bacillus in their sputum) it is satisfying to know that we aided the patients in getting the proper treatment.

The eye manifestation will at least make us think of a tuberculous involvement and will aid us in trying to check a tuberculous tendency. Tuberculin injections when properly given are a great aid in our treatment. I have outlined eleven distinct points:

1. The nodular cellular lymphoid deposits, ulcerative and nonulcerative (phlyctenules) of the corneoscleral border are local eye manifestations of a constitutional dyscrasia, strongly suggestive of tuberculosis—if not tuberculosis, then something very closely associated, bearing a striking resemblance in its symptomatology to tuberculosis.

2. While the microscopic sections of these nodules show giant cells, it would not follow that the nodules are tuberculous, but rather indicate that the cellular infiltrate is a manifestation of the disease and not the cause.

3. The treatment has been hygienic and sanitary: sodium borate drops in nonulcerative case, and in corneal ulceration 1 per cent. atropin and protective glasses; tuberculin bouillon filtrate given in doses varying from 0.000001 gm. to 15 mg. At least thirty-five to forty treatments are demanded, and as high as fifty or more. Prolonged tuberculin treatment is important, and in doses averaging 0.0001 mg. I think at stated intervals it is advisable to renew tuberculin treatments. During tuberculin treatment eyes rapidly improve, and there were no recurrent attacks with the exception of one case, which was slight. Temperature, pulse and respiration were carefully watched. Any rise or tenderness and redness at the point of injection would indicate too strong a dose. The patient should *sustain toxins given* with *no reaction;* this is important.

4. Of the thirty-nine patients seven had pulmonary phthisis.

5. Sixteen had some form of tuberculosis as cervical adenitis or tuberculous bone.

6. Thirty-two had a positive von Pirquet reaction.

7. Eighteen had adenoids and diseased tonsils; the tubercle bacillus was found six times in microscopic sections.

8. Four showed tubercle bacilli in their sputum.

9. Eight physical examinations were suggestive of some form of lung involvement.

10. Thirteen had a Wassermann test with eleven negative.

11. Seven had a member of their family with tuberculosis.

322 North Charles Street.

2. Norman, A. C.: Tuberculin in Ophthalmic Practice, Hospital, London, 1915, **58**, 9.

THE PATHOGENESIS OF OPHTHALMIA ECZEMATOSA

A PRELIMINARY REPORT *

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The acute interest of the profession in phlyctenular disease has been maintained for some time past, for two principal reasons: first, because the disease itself offers so much calculated to attract continued attention — its prevalence, complications, sequelae, and frequent recurrences — and second, because the problem of its pathogenesis is still *sub judice,* no one claim having succeeded in gaining a firm foothold in science.

As long as the etiology of ophthalmia eczematosa remains obscure, treatment will be empiric. Had we succeeded in accidentally finding a specific for the cure of phlyctenular disease such, for example, as we have in quinin for malaria and in mercury for syphilis, the fact that we have no absolute knowledge of the real causal factor would be only of academic interest; but, as will be seen, we have not been fortunate in discovering a specific as yet, and hence any investigation aimed at the finding of a cure of this troublesome malady must be in the form of a search for the causal factor of this form of ophthalmia.

Ophthalmologists throughout the world became much interested when a few years ago the teaching was promulgated that ophthalmia eczematosa, or phlyctenulosis, is due to either the tubercle bacillus or its toxins. Naturally the recognition of tuberculosis in some form as the cause of phlyctenular disease led to the application of a supposedly rational therapy. The entire antituberculous therapy, as tuberculin, ferruginous tonics, fresh air and overfeeding, was utilized against this disease, but unfortunately with no special result. The fact that the von Pirquet and other cutaneous tubercle tests yielded a surprisingly large number of positive reactions justified that therapy, but the comparatively insignificant clinical results certainly prove practically conclusively that the etiology of ophthalmia eczematosa is not tuberculosis.

The only other important theory which has been advocated by competent observers is that the disease is due to intestinal fermentation. As will be seen later on, therapeutic experiments to confirm this hypothesis have proved negative.

It seemed to me that in this era of advanced pathology the inability to demonstrate the underlying cause of any form of ophthalmia must stand out as a reproach and that some light must be reached if a

* Read before the Section on Ophthalmology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

systematic search for it be made. That such a road is not devoid of difficulties is known to every one who has tried to secure diagnostic laboratory data of this disease. Might it not be that perhaps in this case the microscope and serologic tests are not the signs of the proper road? I did not answer that question when, a few years ago, utilizing a clinical material which exceeds 500 patients, I undertook to make an inquiry into the cause of ophthalmia eczematosa.

In presenting to the profession the results of this investigation no claim is made that this report is exhaustive, nor is it the intention to submit a detailed recapitulation of the scientific labors on this subject available in contemporaneous literature; but the mere narration, it is believed, is sufficiently convincing to show that the evidence, new though it be, is based on undisputable facts.

To begin with, the doubt of the tuberculous origin of the disease, justified by the repeated observation that patients treated for tuberculosis fared no better than those given other routine therapy, should cause the elimination of this theory from all calculations; but this, too, was included in the projected investigation.

Surgical therapy, and the use of vaccines and antitoxins have shown so conclusively negative results that these early were eliminated, not only as curative agents, but also as measures to indicate the causal factor or factors.

A plan was adopted to try with great care any drug at all likely to benefit the disease itself or at least its symptoms, on the presumption that if a really valuable agent be found an explanation of its rationale could possibly be arrived at and the desired goal reached. To prevent error, the routine practice of administering several drugs at one and the same time was abandoned, and each drug selected was studied singly. Boric acid, argyrol, protargol, silver nitrate, zinc sulphate, yellow mercuric oxid, mercuric chlorid, ethylmorphin hydrochlorid (dionin), atropin and similar drugs were subjected to thorough and prolonged therapeutic tests. It is evident that practically the entire ophthalmic, bactericidal and mydriatic armamentarium has been exhausted. The result of this inquiry can be given in one brief sentence: Not one of these drugs, with the single exception of atropin, had any real influence on the course of the disease. The findings are based on control observations, namely, that the drugs named, atropin excepted, had identically the same therapeutic results as those seen from the application of placebos. Atropin gave decided symptomatic relief, and in all probability was not without some curative influence.

It is interesting to note, however, that while the corneal phase of this disease does not respond to our classic bactericidal treatment, true corneal ulcer becomes clean and covered by epithelium; but this is as far as one can attain, for it continues to remain in a state of irritation, not unlike a nerve ending disturbance, similar to herpes zoster ophthalmicus, but milder than in this condition until the clinical entity has run its course.

In view of these results, all drugs were discarded and topical treatment restricted to the use of atropin irrespective of whether the cornea, conjunctiva or limbus was involved.

The evidence of the ineffectiveness of topical therapy clearly shows that the condition under consideration is not a localized disease, but a local manifestation of a systemic disturbance. The finding of the true underlying systemic cause, therefore, became the most important problem. The question which presented itself was by what method the desired result might be attained, since the aimless employment of the entire diagnostic armamentarium could have led only to confusion. Physical examination of the patients yielded the following data, which gave some index as to the best manner of search:

The greatest prevalence of the disease is between the second and twelfth years of life. Patients under 2 years of age are rarely seen. Seventy-five per cent. of the children were fairly well nourished. It is noteworthy that some of the most severe cases seen were in plump, ruddy children, to all appearances presenting an excellent degree of health.

This does not bear out the assertions of certain authors that phlyctenular disease is usually observed in anemic children with what is best described as a tuberculous habitus. The sexes were equally represented. The majority of the patients belonged to the poorer classes, in which the familes are large, and in which the environment from a hygienic standpoint is not wholly bad, except that individual parental control is exceedingly limited, the children being left almost entirely to their own resources. Adenopathy was manifest in the submaxillary, anterior and posterior cervical regions, the lymph glands being plainly discernible on palpation but rarely painful on pressure. The tonsils and adenoids were frequently enlarged and diseased. Skin and hair were characteristically dry. Erosions around the nostrils and behind the ears, especially where the two skin surfaces come in contact, were seen frequently. These erosions, which proved to be an intertriginous eczema, were often observed also in the inguinal folds, especially in very young children. Seborrhea of the scalp was not infrequent in the same class of children. A history of cough and loss of weight was seldom secured. Urinalysis, with special reference to the presence of albumin, sugar and indican, invariably gave negative results.

The routine eye examinations for this class of cases revealed nothing unusual as regards the clinical picture of the conjunctiva, limbus or cornea, and presented no statistical data of special significance. Could these manifestations be explained by tuberculosis? The most thorough search to sustain such a diagnosis by all available clinical agents proved futile. While there is no lack of ophthalmologists who still believe tuberculosis or tuberculous toxins to be the cause of phlyctenular disease, there are authorities who have emphatically rejected this theory.

Macnab,[1] quoting Axenfeld, says:

> Axenfeld has thoroughly disposed of the contention that phlyctenules are true tubercular lesions, and Mueller, in a series of transplantation experiments in which fresh phlyctenules were introduced into the anterior chamber of rabbits, failed in every case to produce a typical tubercular lesion.

John W. H. Eyre,[2] hunterian professor and examiner in bacteriology of the Royal College of Surgeons, in his hunterian lecture on tuberculosis of the conjunctiva, says:

> That many of those subject to phlyctenules give evidence of the existence of tuberculous infection in some portion of their tissues is no evidence that the conjunctiva lesion is also tuberculous, and until some responsible observer has demonstrated the presence of the tubercle bacillus in an extended series of phlyctenules, I see no valid reason for regarding

1. Macnab, Angus: Diseases of the Cornea, New York, William Wood & Co., 1907.
2. Eyre, J. W. H.: Lancet, London, 1912, **1**, 1319.

phlyctenulosis of the conjunctiva per se as a form of tuberculosis of the conjunctiva.

L. V. Hamman,[3] chief of the Phipps Tuberculosis Dispensary of Johns Hopkins Hospital, and co-author of Hamman and Wolman's work, "Tuberculin in Diagnosis and Treatment," says that if phlyctenulosis is a tuberculous manifestation it certainly some time should show the presence of the tubercle bacillus, and that the tuberculous toxin theory is fast losing ground.

George S. Derby[4] of Boston, who has treated a great many of these conditions with tuberculin, says:

> I have had considerable experience with tuberculin in the treatment of phlyctenulosis, and I feel doubtful whether any of these cases have been much benefited by it.

Brown and Irons[5] of Chicago recently reported on 100 cases of disease of the uvea, and in only two cases did they have a focal reaction with the subcutaneous test. This demonstrated the rarity of tuberculosis of the eye.

In common with the most universally accepted teachings, I have long abandoned the use of the skin test after the second year of life. In patients under that age only 35 per cent. gave a positive reaction, and that usually was a delayed local reaction, while the subcutaneous tests, which have been tried in a relatively small number of cases, rarely proved positive. Therapeutically the topical and subcutaneous use of tuberculin proved without effect. Tuberculosis as a factor in phlyctenular disease can therefore be absolutely set aside.

Attempts to secure cultures from phlyctenules have not given satisfactory results, owing to the great difficulty in securing unmixed material from the papules even before they ruptured. As a rule the same flora was encountered which is commonly found in all conjunctival sacs, namely, staphylococcus, pneumococcus, diplococcus, *Micrococcus catarrhalis*, xerosis bacillus and others. Reliable workers have found the contents of unruptured phlycentules to be absolutely sterile.

While syphilis suggests itself as a possible factor, though no one has so far seriously considered it, this can be eliminated, since in the available material no data for such a diagnosis were even remotely present.

Finally, the removal of enlarged and diseased tonsils and adenoids for the purpose of influencing the ophthalmia, which had been strongly advocated some time ago, was subjected to a thorough test, but in spite of numerous radical enucleations no appreciable effect on the course of the disease could be demonstrated.

There remains the theory of intestinal putrefaction, which even at the present time has many advocates. The histories of all patients under observation show that their parents have seldom observed offensiveness of the stools. I made the Obermeyer test for indican in twenty-five cases, but no trace of this was discovered in the urine. This, however, need not be accepted as conclusive evidence for the absence of intestinal putrefaction. Though intestinal putrefaction could not be demonstrated through urinalysis, a number of patients were treated on the assumption that the intestinal disturbances actually existed. Suitable drugs, such as salol, calomel, acetylsalicylic acid, sodium salicylate, bismuth, sodium bicarbonate, liquid petrolatum and lactic acid bacillus either in pure bouillon culture, in tablet or in powder form, were administered, each single drug being subjected to a prolonged test.

It is interesting to note that, of all of the drugs used, calomel appeared to produce the most favorable results. This led to the adoption of an empiric routine, namely, atropin locally and calomel internally, as the most effective medicinal therapy.

It may be added that for some time the favorable results obtained from this combination encouraged the conviction that intestinal putrefaction was the solution of the problem, and the tentative acceptance pointed to the next step to carry the treatment to logical finality through the addition of the appropriate dietetic measures.

When the parents of the afflicted children were questioned, it was learned that fully 98 per cent. of the patients consumed an excessive amount of carbohydrates, especially in the form of sweets. At first I was inclined to pay scant attention to this feature. Further questioning, however, elicited the statement that these very children had little desire for plain, nutritious food. With a view of ascertaining whether or not this faulty diet had any decisive influence on phlyctenular disease, a practically carbohydrate-free diet was instituted in a series of cases as the single and sole method of treatment, excluding even the topical use of atropin, with the gratifying result that the children so treated did far better than with calomel and atropin alone. Later medication and diet were combined with exceedingly satisfactory results. The diet prescribed consisted of plain foods, as bread, butter, milk and eggs. This dietary cannot be regarded as ideal, but was the best available for external reasons.

These results were so striking that many interested colleagues who were familiar with this series of experiments admitted the striking improvements, but questioned the direct relation of the dietary to the favorable phenomena. As I was convinced that the dietetic regimen alone and unaided was the principal cause of the favorable course of this disease, another series of experiments was made which left no room for further doubt. A number of children whose affections had been under complete control were taken off the dietetic regimen, and given foods rich in carbohydrates. Almost at once this disease reappeared with the acuity of a pronounced relapse. These experiments were repeated at frequent intervals, and invariably yielded the same results.

The experience became so convincing that whenever patients presented themselves with a relapse, faulty diet was assumed and invariably admitted. Again and again the observation was made that relapses occurred when the parents ceased to exercise control over their children, enabling the latter to yield to the temptation to consume sweets. Naturally the question suggested itself whether the dietetic error, shown to exercise a decided influence on the course of the disease, was to be sought in the carbohydrates per se, or merely in the sweets. To answer this question, a control test was made in which ample doses of saccharin were administered as a substitute for the sweets. It was now uniformly observed that this coal tar product did not in the least show any unfavorable influence on the ocular manifestations, proving conclusively that the carbohydrates per se must be held responsible. Whether the unfavorable influence of carbohydrates is to be ascribed to faulty metabolism, or to a limited ability of assimilation of the carbohydrates, the excess probably under-

3. Hamman and Wolman: Tuberculin in Diagnosis and Treatment, p. 209.
4. Derby, G. S.: Disease of the Optic Nerve in Myxedema, THE JOURNAL A. M. A., Sept. 21, 1912, p. 1045.
5. Brown and Irons: Paper read before the Chicago Ophthalmological Society, 1916.

going chemical changes, which in turn yield toxic or irritating agents sufficiently effective to produce eczematous manifestations, must for the present remain an open question. As regards the modus operandi of whatever processes are responsible, we must look to physiology for an explanation.

It will be recalled that some time before the investigation was completed, the routine treatment of atropin topically, calomel internally and a carbohydrate-poor diet was found to yield the best results. The rationale of the administration of calomel needs no defense; but this drug has no bearing on the favorable influence of atropin, the latter having proved effective even without calomel. How can this be explained? Might it not be that in phlyctenular disease we have actually to deal with a part of the picture of exudative diathesis as propounded by Czerny,[6] and that the external phenomena are the result of irritability or hypertonia of the vagus system?

If this is the case, atropin, and not calomel, is therapeutically the drug best suited. Accordingly, calomel was abandoned and atropin administered internally instead, in a series of cases, as suggested by the practice of Krasnogorski[7] and Leopold,[8] who prescribe a solution of atropin of 1 grain to the ounce of water in doses of 3 drops every three hours, and daily increase the dose by 1 drop until the physiologic effect is reached. A number of patients were treated by this method without stopping the topical applications of atropin and restriction of diet. The tolerance manifested by these children for this powerful drug is quite remarkable, some consuming as high as ⅓ grain daily.

This form of treatment has now been extensively followed for the past eight months, and the results have been so greatly superior to any routine followed heretofore that, with the present experience as a basis, one cannot but say that absolute control of the symptoms of phlyctenular disease is assured by it. It must be emphasized, however, that while atropin best controls the symptoms, permanence of therapeutic results will depend on a strict adherence to a suitable diet even long after all the symptoms have disappeared.

It is realized that, in the presentation of the observations, workers accustomed to exact laboratory methods will find much that is not free from objections. It is conceded that in the further investigation of phlyctenular disease laboratory workers can find many unexplored avenues for scientific research. The investigation of the blood for the presence of acetone alone presents quite a problem. Chemical studies of carbohydrate metabolism and neurologic study of the vagus system are other fields of interesting activity. But the evidence so far submitted, clinical though it be, is too persistent and too extensive to be ignored.

SUMMARY

1. Ophthalmia eczematosa or phlyctenular disease is not a true pathologic entity but symptomatic manifestation of a systemic disturbance.

2. Tuberculosis, syphilis and sepsis can be excluded with certainty as causal factors.

3. Phlyctenular disease is in all probability one of the expressions of vagus system irritability produced by some toxic agent, resulting from faulty carbohydrate chemism.

4. Correction of the chemism by carbohydrate-free diet and control of the vagus hypertonia through the topical and internal use of atropin yield the best and quickest possible therapeutic results.

6. Czerny: Exudativa Diathesa, Jahrb. f. Kinderh., 1905, p. 199; Scrofulosa and Tuberculosa, ibid., 1909, p. 529.
7. Quoted by Leopold (Note 8).
8. Leopold, J. S.: Atropine Treatment for Exudative Diathesis in Infancy, Am. Jour. Dis. Child, October, 1915, p. 288.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GOLDBACH AND GOLDENBURG

DR. RICHARD J. TIVNEN, Chicago: As to Dr. Goldenburg's second conclusion, that tuberculosis can be excluded with certainty as a causal factor, I must differ with him. Personally, I believe that phlyctenular trouble is an ocular manifestation of tuberculosis, basing my opinion on a study of fifty cases treated with tuberculin diagnostically and therapeutically, as well as a study of the observation of numerous observers.

Dr. Goldenburg has not, in my opinion, submitted any precise scientific data, nor does such research work and observation as he has presented warrant him, in my judgment, in making such a sweeping, positive assertion. It is admitted by those favoring the tuberculous theory that their contentions are far from being proved. It is true, as Dr. Goldenburg says, that the tubercle bacilli have not been found in the phlyctenule; that transplantation experiments with fresh phlyctenules into the anterior chamber of the eyes of rabbits have failed to produce a typical tuberculous lesion. These are the two evidences which at this present time prevent the acceptance of the tuberculous theory. It has been advocated that the failure to obtain success in these may be, perhaps, due to the peculiar vagary of the phlyctenule itself, a peculiar stage of its development or a faulty method of identification. Be that as it may, however, precise clinical observation cannot or should not be ignored. Certainly there is no class of patients who present clinically more significantly the stigmata of a tuberculous process than do these children with phlyctenular trouble. The majority are poorly nourished, of minus resistance, come from bad hygienic surroundings, many present, as Dr. Goldbach and others have shown, tuberculous foci in other parts of the body—the lungs, bones and glandular system. Their phlyctenular trouble itself is, like most tuberculous processes, stubborn, sluggish and prone to recur with each drop or remission in the body resistance. In addition to these clinical observations, tuberculin diagnostically and therapeutically does give a positive response in an astonishingly large number of cases and its therapeutic administration does, according to competent observers, give improvement.

DR. HUNTER H. TURNER, Pittsburgh: The perversion of carbohydrate metabolism or the tuberculous theory cannot explain the variations which characterize phlyctenulosis. It is generally conceded that the ocular manifestation is secondary. Where, then, and of what character is the primary lesion? The fact that the process remains limited, in many cases, to only one and always the same eye, over a period of years, is proof positive of a tissue pathology, if not of the eye then of some contiguous structure which may be unilateral. I am firmly convinced that the essential lesion in these cases is a low grade, chronic ethmoiditis with obstruction to drainage. The outer wall of the labyrinth forms the inner third of the bony orbit and is frequently defective. Skillern says that it is common for sinusitis to occur in children during the course of measles, scarlet fever, pertussis, influenza, pneumonia, etc., and that the resulting tissue devitalization favors a secondary infection which may persist indefinitely. All ophthalmologists know how frequently the primary attack of phlyctenulosis follows these acute infectious diseases. Skillern quotes Hajek to the effect that indiscretions in diet will produce an exacerbation of a chronic sinusitis. The several elements which may influence unfavorably the local sinus lesion are: diseased tonsils and adenoids; obstruction to ethmoidal drainage by deflected septum, spurs, or "tight" nostrils, which in children usually result from faulty eruption of the teeth; any general toxemia, of which the chief is intestinal in origin. Hypertrophied pathologic tonsils and adenoids produce a stasis in the lymphatic flow with intumescence and bogginess of the intranasal and intrasinus mucosae and interference with sinus drainage. The

retained infected sinus contents accumulate under pressure, are forced into lymphatic channels and carried along to the tissues of the conjunctiva or cornea, where they lodge and produce the typical phlyctenular lesions. The removal of such diseased tonsils will effect a relief of the condition only when they are the sole exciting factor.

Dr. George F. Sullivan, Hoboken, N. J.: I do not agree with Dr. Goldenburg that we can immediately cast aside the theory of tuberculosis. According to the title of the paper this is an ophthalmia eczematosa. Almost all skin men agree at present that infantile eczema or eczema in the adult is a protein sensitization. That is, there is anaphylaxis to certain proteins. If such is the case, a high protein diet would increase the eczema instead of decreasing it, inducing anaphylaxis. In eczema Dr. Bulkley gives a diet of rice, bread and butter and water. He usually keeps the patients on this diet four to six days, and most of them clear up wonderfully. Twenty or thirty years ago Dr. Herman Knapp in his questionnaire usually gave as the first question, "Does the child eat cinnamon buns, fresh bread, tea or coffee?" The question was usually answered in the affirmative. He immediately placed them on a rigid protein diet, as one would patients with tuberculosis or adenopathy. There is a general adenopathy in 50 per cent. or more of the cases, which is indicative of tuberculosis, and the first thing you do is to place them on a tuberculosis regimen—give them fresh eggs, milk, air baths and cod liver oil. I think cod liver oil is a great help, and I think tuberculin in long continued treatment is efficacious. If tuberculin therapy was carried out long enough we would see better results. Dr. Derby found that 88 per cent. responded to the von Pirquet test. In these cases I feel that it does not make much difference whether one gives atropin internally or in the eye, provided it is used weak enough; 1/100 of 1 per cent. locally will give practically the same results as if given internally in larger doses. Mercury is given empirically. We do not know whether it does any good or not, but atropin is an antispasmodic and the results have been through its influence on the ciliary muscle.

Dr. H. W. Woodruff, Joliet, Ill.: It seems to me that the one fact we should bear in mind is that we should try not to become men of one idea. We set up a certain theory or idea and make everything focus in that direction. There are certain facts that stand out clearly in connection with this disease, and one is that these cases seldom occur where the children have the best surroundings. That of course fits in with tuberculosis, but at the same time it fits in with many other diseases. I do not see that we have gone far in taking up this question of the exudative diathesis. I have read what I have been able to find on that subject and I do not see that we have advanced any further than when we talked about scrofula. We had no definite explanation about scrofula; then came the theory of tuberculosis. Now we are asked today to take up the theory of the exudative diathesis. It is fortunate indeed that we are still able to treat these diseases even when we do not know absolutely the cause; in fact, there is no one cause; it is a combination of conditions.

Dr. A. E. Davis, New York: I want to speak of the treatment. I have been using the tuberculin treatment for some years and I am still more favorably impressed with it than when I began. I agree with Dr. Woodruff that we do not know what causes it; we are still guessing; but we do know the result of treatment. My belief is that we stop the tuberculin treatment too quickly in these patients. For instance, we have a child with phlyctenule and the other discrasia of scrofula. We put it on a diet, local and constitutional treatment, and perhaps tuberculin. As soon as these little phlyctens disappear and the child picks up some we turn him loose. What is the result? If you get him early in the spring, he has another attack before summer comes on. I have found that if we give them four months' treatment the tendency is not for a recurrence. That is the point I should like to impress on the section, that we do not give the treatment long enough. I also like to get some reaction from the tuberculin injections. I do not believe in keeping them too low. We ought to know when we get the effect, and when we get a reaction, drop back a little and hold it there.

Dr. Leo J. Goldbach, Baltimore: These patients had thorough physical examinations; blood tests and roentgenograms were made. They were referred to different departments for special examinations. Our social worker followed up each case, making them come back for treatments and observation by giving inducements. We did get some results. I agree with Dr. Davis that it is important to keep up the tuberculin treatment. We have some cases that have had sixty injections or more. With thorough examinations and team work we intend to follow up these cases. The phlycten is a manifestation, and the tubercle bacillus will not be found in the sections. It is an ocular manifestation of some systemic discrasia, probably tuberculosis.

Dr. Michael Goldenburg, Chicago: In reply to Dr. Tivnen, I would suggest that he try in his next fifty cases the régime he suggests, minus the use of tuberculin, and I am sure he will get just as good results. I have tried it, and if he will try the treatment I have outlined in a series of cases I will positively promise him better results and in half the time.

In regard to this condition occurring in poor people, it is true it is much more common in poor people, not because they are poor or because their food is poor, but because they are members of large families where the mothers are unable to give the children individual attention. In private practice or in adults, where I have been able to obtain intelligent cooperation, I have not had a relapse in the past three or four years. Dr. Tivnen quotes Finkelstein: "Finkelstein mentions an alimentary intoxication due to carbohydrate intolerance."

As to Dr. Turner's suggestion of sinusitis as a causal factor, I have examined the nasal passages of a great many of these children and could find no cause for thinking as he does. The rhinorrhea present is largely due to excessive lacrimation and patent tear ducts.

As to Dr. Sullivan's suggestion of anaphylaxis, I tried to account for this condition on these grounds a few years ago, but could make no headway. I went into their dietary thoroughly and found they consumed an excess of carbohydrates, not proteins. It is to be regretted that very little appears in the literature on carbohydrate metabolism after the second year of life; everybody seems to be working on proteins. As to the action of atropin, it has been my experience that in the severe cases, as soon as the pupils are thoroughly dilated, the local symptoms subside, and not before. In fact, if a child did not show improvement in a few days I could say that the pupils were not dilated, even before I separated the lids. Atropin at first has a simulating action, and during this stage it acts on the vagus.

Standardizing War Relief.—Winthrop D. Lane in the *Survey*, April 14, 1917, describes the plan of organization of the Red Cross into departments of civil and military relief, which are made distinct. Base hospitals, hospital units, emergency nursing corps, etc., have been organized by the military department. There has also been created within the military department the bureau of Red Cross Supply Service, with branches in Boston, New York, Chicago, New Orleans, Denver and San Francisco, with a director in charge of each. The objects of this service are to afford full information of the standard kind and quality of all supplies for military relief; to collect, inspect and store until needed supplies produced for that purpose; to distribute supplies of the right kind and quality at the right place at the right time, and to have the ability to do so on every request of the army or navy; to stimulate the production of useful, standardized material, not only by chapters and members of the Red Cross, but by all interested organizations and citizens generally. The Red Cross by proclamation of President Taft in 1911 is the only volunteer society authorized by the government to render aid to the land and naval forces in time of war, and all other societies or organizations desiring to render similar assistance must do so through the Red Cross. The organization of the new bureau of supplies will tend to prevent confusion, duplication, delay and waste in the matter of supplies.

THE EARLY DIAGNOSIS OF DIABETES

A SIMPLE METHOD INVOLVING STRAIN ON THE CAPACITY OF THE TISSUES TO UTILIZE GLUCOSE *

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The essential difference between the normal and the diabetic organism is the inability of the latter to utilize as much glucose as the former. This much may be said with certainty even though the structural defect of which this functional disability is the expression remains obscure. The evidence for and against it was discussed by Allen in 1913. He added new experimental evidence of his own in its favor, and since that time further data have been accumulated by others till there is now no reasonable room for doubt.

Accuracy in early diagnosis usually follows the ability to demonstrate one or other of the essential links in the chain of the causation of disease. The early diagnosis of typhoid and of syphilis is possible because the typhoid bacillus and the *Spirochaeta pallida* can be found. In these instances one of the ultimate factors in the etiology is demonstrable. But it is not necessary to reach ultimate causes in order to attain certainty. In the diagnosis of hemophilia, for instance, the recognition of the slow rate at which prothrombin is converted into thrombin suffices, although the exact structural anomaly from which that phenomenon arises is unknown. So, in diabetes, ignorance of the fundamentals of its pathogenesis is no reason why knowledge of its proximate causation should not be utilized for the recognition of the condition in its early or latent stages. When the symptoms of polyuria, thirst, weakness and loss of weight have developed, the loss of power to utilize sugar does not require demonstration; its results are already plain. But it is important from the point of view of treatment that a diagnosis should be established before and not after these symptoms have appeared. This is always possible, and in the future will be more and more frequently accomplished. It is possible not because of any special astuteness on the part of the physician in the recognition of a complex of slight clinical indications, but as an indirect result of the finding of one objective sign — glycosuria; and this sign will be more frequently used as an opportunity to determine or to exclude the existence of the diabetic condition, as the practice of having the urine examined for sugar apart altogether from the existence of diabetic symptoms becomes more and more widespread.

Glycosuria is found before other symptoms and signs of diabetes have developed; sometimes long before. It is one expression of a loss of the capacity to assimilate sugar, and it happens to be the one which is most easily and accurately measured. But it can never be taken as the sole basis for a diagnosis of diabetes, for glycosuria may arise from other causes than failure to utilize glucose. Nondiabetic glycosurias are frequently encountered.

Some years ago we determined the frequency of glycosuria in ambulatory patients coming to the outpatient department. In a series of 2,165 consecutive urinary examinations, a positive Benedict's test was found in 192. All gave a positive or doubtful reduction of Fehling's solution. In thirty-three of these cases, the reducing agent was shown beyond doubt to be glucose. Typical ozazone crystals were isolated, and a definitely positive fermentation test obtained. Of these thirty-three cases, only twelve could be diagnosed as diabetes. In the remainder, no symptom or sign of that condition could be found. Thus, roughly, there was a patient with glycosuria but no other evidence of diabetes among every hundred coming to the clinic. It was the frequency of glycosuria demonstrated in this study which led to the development of the method now described. Its use has shown that nondiabetic glycosuria is more often encountered than diabetic.

Each type of glycosuria has a different cause, and a distinction between them must rest on their causation. Only diabetic glycosuria is due to a deficiency in the capacity of the tissues to utilize glucose. In order to separate it from other forms, it is necessary to demonstrate some characteristic arising directly from its specific cause. Its cause is a failure of one of the functions of the body, and the measure of the degree of this failure is the quantity of sugar lost in the urine. It is a generally applicable principle that a defect in function becomes more and more apparent, the greater the strain to which it is subjected. If the tissues were called on for successively increasing amounts of work in assimilating glucose, we should therefore expect to find evidence of a correspondingly increasing failure of function in the form of larger and larger quantities of glucose in the urine. In the test the increasing amounts of work are given in the form of 0, 25, 50, and 100 gm. of glucose taken on four consecutive days. Under these conditions it is only in the cases in which the glycosuria arises from failure to utilize glucose that a sharply rising curve of sugar excretion is found. The details of the test are given in the instructions we are in the habit of handing to outpatients:

INSTRUCTIONS FOR OUTPATIENTS

1. General

The test consists in the study of the urine after giving a measured amount of a special sort of sugar. On the first day, a measured amount of water but no sugar is taken in order to find out the amount and character of the urine when no sugar is taken. On the second day, 25 gm. of sugar are taken with water at the beginning of the day, on the third 50 gm., and on the fourth day, 100 gm. Each day, the test extends over a period of four hours, beginning from the moment you rise from bed. The urine must be passed at the end of the second and at the end of the fourth hours. It is very important to note the exact time of taking the water, or the water with the sugar dissolved in it, and the urine must be passed exactly two hours later.

All the urine passed at the end of the second hour goes into one bottle, and *all* the urine passed at the end of the fourth hour into another bottle. This is an important point. We cannot get reliable information unless the total amount of urine is brought. Write your name on the bottle and put "No. 1" on the first bottle, and "No. 2" on the second, and bring or send them to the hospital. At the end of the fourth hour on each day, the test is ended for that day, and you can eat or drink as you please.

2. Instructions for the First Day

A. In the morning when you rise from bed:

1. Pass all urine.
2. Immediately afterward drink 1 pint of water (if you have not a pint measure, use an empty pint milk bottle as a measure.
3. Make a note of the time.
4. Take no breakfast.

* From the Laboratory of the Medical Division of Leland Stanford Junior University, School of Medicine.

B. Exactly two hours later:
1. Pass all urine and collect all of it in a corked bottle to which you will attach the label marked "First Day—Specimen 1."
2. Immediately afterward, drink a pint of water.
3. Make a note of the time.
4. Take two boiled eggs or poached eggs without salt, but take no other food.

C. Exactly two hours later:
1. Pass all urine and collect all of it in a corked bottle to which you will attach the label marked "First Day—Specimen 2."

This is the end of the test for the first day.

Write your name, address, and clinic number (the number on the card you received at the history room) on the labels and bring them any time before 3 p. m. on the same day.

Similar detailed instructions are given for the other days, with the exception that the patient is told to take 25 gm. of glucose on the second day, 50 gm. on the third day, and 100 gm. on the fourth day, dissolved in the first pint of water.

COMMENT

During the past three and a half years this test has been used in over 100 cases of glycosuria. There were of course instances of failure to collect all the urine, but surprisingly few. In nearly all cases the results were quite definite, and we have not found a case in which a diagnosis based on the test has later proved to be incorrect.

In Table 1 examples are given of cases in which a diagnosis of diabetes was made. The characteristic common to all of them is the considerable relative increase in glucose excretion with increase in the quantity taken. It is on this evidence of a relation between the extent of the failure to assimilate glucose and the degree of strain imposed on the assimilative function that the diagnosis is based.

TABLE 1.—EXAMPLES OF CASES DIAGNOSED AS DIABETES MELLITUS

Patient	Amount of Glucose in Urine			
	First Day	Second Day	Third Day	Fourth Day
	Intake=0 Gm. Glucose Gm.	Intake=25 Gm. Glucose Gm.	Intake=50 Gm. Glucose Gm.	Intake=100 Gm. Glucose Gm.
1	0.0	0.6	3.8	11.6
2	0.0	0.5	3.0	12.3
3	0.0	0.5	3.5	14.8
4	0.0	1.1	6.2	20.4
5	0.0	1.1	5.1	....
6	0.2	1.2	2.0	4.4
7	0.1	7.5	9.4	14.8
8	0.9	5.8	14.5	22.4
9	8.2	18.1	29.9	49.7
10	4.3	20.5	25.7	24.4

In cases such as the first four we have cited, the patients are frequently without diabetic symptoms, and were asked to go through the test because sugar had been found in a routine examination of the urine. These are instances of the early diagnosis of diabetes.

Patients with diabetes in whose urine sugar is found on the first day of the test when no glucose is taken have almost always already developed such symptoms as polyuria and loss of weight. There is great variation, however, in the severity of the symptoms. Patient 6, for instance, had no symptoms, although in Case 7 they were very pronounced. In Case 6 there was considerable doubt in making a diagnosis of diabetes. The increase in the amounts of sugar excreted was so small that it was thought he might have a renal diabetes; the subsequent course, however, showed that there was a true diabetes, though of a very mild type.

Pronounced renal insufficiency may apparently alter the curve of glucose excretion. Patient 10 had chronic glomerular nephritis, and died a few months after the test in uremia.

When sugar is found in the urine only after 100 gm. of glucose, a further dose of 150 gm. may be given. We found that none of these cases showed a significant increase in glycosuria after 150 gm., but no doubt there is a stage in the development of true diabetes at which there will be no sugar after 50 gm., a little after 100, and a considerably larger amount after 150 gm. At that time, however, there is not likely to be the occasional trace of sugar in the urine after carbohydrate food which attracts attention to the need for testing the capacity of the tissues to assimilate glucose.

TABLE 2.—EXAMPLES OF CASES DIAGNOSED AS NON-DIABETIC GLYCOSURIA

Patient	Amount of Glucose in Urine			
	First Day	Second Day	Third Day	Fourth Day
	Intake=0 Gm. Glucose Gm.	Intake=25 Gm. Glucose Gm.	Intake=50 Gm. Glucose Gm.	Intake=100 Gm. Glucose Gm.
1	0.0	0.0	0.0	0.0
2	0.0	0.0	0.3	0.0
3	0.0	0.9	1.0	0.1
4	0.0	0.6	2.9	2.5
5	0.0	0.0	2.9	2.0
6	0.0	0.7	0.8	2.2
7	0.0	0.3	0.6	1.1
8	0.0	0.5	0.8	0.6
9	0.3	0.3	0.3	0.3
10	0.0	0.0	0.0	0.0

In Table 2, examples of nondiabetic glycosuria are given. The characteristic common to all is the want of a relationship between the amount of sugar ingested and the amount excreted. With increase in the quantity of glucose taken, there is no increase or only a trivial increase in the quantity of sugar found in the urine.

The first four cases are instances of the type of glycosuria which is most frequently encountered. A patient comes to the clinic in a state of nervous tension. A little sugar is found in the urine. But when he goes through the test there is usually, as in Case 1, no sugar found in any of the specimens, though sometimes small amounts are found not steadily augmenting on the successive days, as in Cases 2, 3 and 4. Such glycosurias are probably analogous to the experimental glycosuria which may be induced by epinephrin. There is a sudden conversion of glycogen in the liver into glucose with a consequent temporary hyperglycemia and the loss of a little sugar in the urine. We have seen several instances of first class risks having been rejected by insurance companies on account of this evanescent and harmless glycosuria. The same error is doubtless now being made in the medical examination of recruits.

In Cases 5 and 6 there were symptoms of hyperthyroidism. There is a good deal of evidence which goes to show that this also is an epinephrin glycosuria. But here the state of excitation is more continuous than that which is seen in neurotic persons under strain, or in almost any one in the excitement produced by some physical accident. As a consequence, the glycosuria is more constant. Yet since it is not dependent on any

loss of capacity to assimilate glucose, it can be distinguished from the diabetic type. Both, it is true, are due to an excess of sugar in the blood, in the one case to an overproduction of sugar from glycogen, and in the other to a failure of the tissues to use the sugar brought to them. In the patient with hyperthyroidism, the ingestion of sugar tends as in the normal person to produce for a short time a slight increase in the sugar content of the blood; but it is very temporary, and with every round of the circulation more and more of the excess is removed by the tissues. There is a limit to the rate of absorption of sugar from the intestine, and the greatest rate of absorption is less than the capacity of the tissues to take up the absorbed sugar, so that it comes about that the ingestion of increasing quantities of sugar leads to little or no increase in the sugar excreted in the urine. In the diabetic, on the other hand, when sugar is taken there is hyperglycemia which lasts longer and rises higher, the greater the quantity consumed.

Patients 7, 8, 9 and 10 probably had renal diabetes. Most of the examples of this condition which we have seen have been in pregnant women. Here there is no hyperglycemia, but the kidney threshold for sugar is lowered. The increase in the blood sugar content following sugar ingestion may lead to a slight increase in the glycosuria, but there is not the marked increase seen in diabetes, and, as it happens, our results in these cases have not been hard to interpret. If there should be doubt, an estimation of the blood sugar during a period when sugar is present in the urine will decide the question.

It is, of course, obvious that this method has not the accuracy or conclusiveness of a determination of the capacity of sugar utilization by the intravenous injection of sugar with the Woodyatt pump, for there are doubtless considerable variations in the rate of absorption of sugar from the intestine. But what it lacks in accuracy is more than counterbalanced by its applicability and simplicity. This test is better than the common practice of giving 100 gm. of glucose. If sugar is found in the urine after such a single dose, it may be an epinephrin or a renal as well as a diabetic glycosuria. It is the steeply rising curve of sugar excretion, not the mere presence or amount of sugar in any one collection of urine, which is of diagnostic value.

Finally, it should be noted that the usefulness of the method is not confined to the early diagnosis of diabetes. It is important that a carbohydrate-free diet should not be given to a woman with a lowered kidney threshold for sugar during pregnancy, and it is worth while to save patients with hyperthyroidism from a diet from which the sort of food best fitted for them is excluded.

PRIMARY NONPIGMENTED SARCOMA OF THE SKIN*

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Primary, nonpigmented, isolated sarcoma of the skin is of relatively infrequent occurrence. The majority of dermatologists have seen but few cases, if one may judge from the scarcity of reports on the subject. Advanced sarcomas of the skin and subcutaneous tissues are more frequently encountered by the surgeons because of the large size attained by these growths and the necessity of surgical removal. Hartzell[1] has remarked that the sarcoma of the surgeon differs widely from that of the dermatologist.

The classification of the cutaneous sarcomas is still a debated question. In recent years the group of malignant pigmented tumors formerly regarded as melanosarcoma has been classed by most pathologists as nevocarcinoma or malignant melanoma. The various sarcoid, lymphoid and myeloid tumors, as well as Kaposi's hemorrhagic sarcoma, have also been separated from the pure sarcomas of the skin. The nonpigmented sarcomas are usually subdivided into localized or single and multiple or generalized forms. Histologically they are further divided into spindle cell (fusocellular), round cell (globocellular), giant cell and mixed cell. It is our purpose briefly to consider the clinical and histologic aspects of the primary, solitary nonpigmented variety and to report two cases which we have had the opportunity to study in their early stages.

Fig. 1 (Case 1).—Primary fibrospindle and giant cell sarcoma of the skin.

REPORT OF CASE

CASE 1.—*History.*—Miss G. F., aged 21, came under observation in December, 1915, with a hard nodular tumor of the skin below the lower lip. This was first noticed in February, 1915, as a small nodule which increased slowly but steadily in size. The patient denied that there had been any abnormality of the skin previous to the appearance of the tumor at that site. In August, 1915, the growth was about the size of a pea and was excised by her physician. Within a few weeks there was a recurrence, and it has rapidly grown to its present size. There has been no pain, no bleeding, and no discomfort aside from the unsightly appearance of the growth.

Present Condition.—Midway between the lower lip and the chin was a yellow, xanthomatous-looking, platelike nodule situated deeply in the derma (Fig. 1). The tumor was about

* Read before the Section on Dermatology at the Sixty-Eighth Annual Session of the American Medical Association, New York June, 1917.

1. Hartzell: Jour. Cutan. Dis., 1893, p. 21.

1 cm. in diameter, round, circumscribed, and considerably elevated above the surrounding skin. Minute blood vessels were seen over its surface. Its consistency was hard, almost cartilaginous, and the tumor mass could be palpated for fully 0.5 cm. in the depth of the subcutaneous tissue beyond its visible border. Through the mucosa of the lip the tumor was readily felt as a platelike mass extending close to the mucous membrane. There was no enlargement of the submental or other cervical glands. No other cutaneous growths were present. A careful physical examination revealed no evidence of visceral metastases. Examination of the blood and urine was negative.

It was at once apparent that we were dealing with an unusual tumor of the skin, and the possibility of an isolated xanthoma or an osteoma was thought of on account of the cartilaginous feel of the tumor. Under local anesthesia the tumor was widely excised and the cavity cauterized with silver nitrate. Subsequently flat radium applicators were employed both externally and through the mouth for 60 milligram-hours in broken doses until a distinct reaction was produced. The wound healed perfectly in three weeks, leaving a smooth scar without infiltration. There have been no recurrences up to the present time and no evidences of metastases.

Histologic Examination.—Grossly the specimen on cross-section was found to be yellowish throughout and peculiarly hard. Histologically the findings with ordinary stains were as follows: The epidermis was thinned but otherwise normal. The papillae were mostly obliterated. The entire corium and subcutaneous tissues were replaced by a solid mass of cells of various kinds (Fig. 2). In the subpapillary zone was a loose meshwork of spindle-shaped cells with a few plasma cells and small multinucleated cells. In the deeper strata were found interlacing bundles of spindle cells running in various directions, surrounding small thin-walled blood vessels and mingled with numerous large giant cells. There was considerable fibrillar intercellular substance. The blood vessels were small, few in number and closely mantled with spindle cells. Under higher magnification the predominating cells were seen to be typically spindle-shaped, with large vesicular nuclei, distinct nucleoli and tapering protoplasm. Many small multinucleated giant cells were present containing from six to twelve deeply stained oval nuclei centrally situated and surrounded by a narrow rim of cytoplasm. In the deeper layers of the tumor were found larger giant cells with from thirty to sixty ovoid nuclei peripherally arranged around a clear central zone (Fig. 3). No mitotic figures were found. Elastic tissue was absent. All the normal glandular and collagenous structures of the corium had been destroyed and replaced by the tumor cells. On account of the clinical resemblance of the tumor to xanthoma, sections were stained with sudan III and osmic acid. None of the characteristic fat containing xanthoma cells were found. The histologic diagnosis was a primary spindle cell and giant cell sarcoma of the skin. This diagnosis was verified by Dr. Robert Zeit, professor of pathology in Northwestern University.

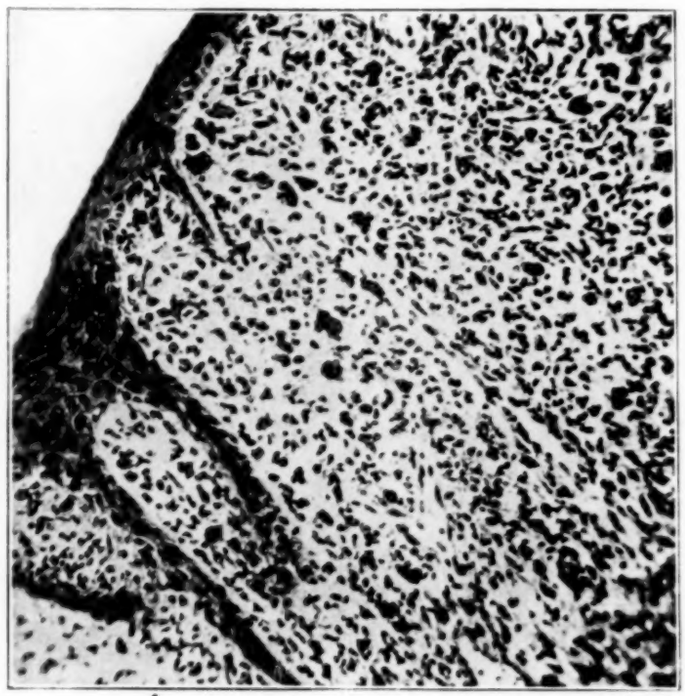

Fig. 2 (Case 1).—Low power photomicrograph showing spindle cells and multinucleated cells (× 170).

COMMENT

On account of the interesting and unusual features of this cutaneous neoplasm, particularly the finding of multinucleated cells, some of which resembled more the Langhans and foreign-body type of giant cell than the myeloplax type, a thorough search of the literature was made for similar cases. Unna[2] was the first to describe a true giant cell sarcoma of the skin, a bluish-red tumor of the face composed of spindle cells with several nuclei, with a gradual transition to multinucleated giant cells which predominated in the deeper portions of the tumor. Unna states that spindle cell sarcomas rarely show giant cells, while in the round cell forms, cell division is so rapid as to prevent the formation of giant cells. Rahel-Zipkin[3] has reported a solitary cutaneous sarcoma of the groin with giant cells of the Langhans type. Pasini,[4] at the International Congress at Rome in 1910, presented a case almost identical with ours under the title "sarcoma fusi-gigantocellulare della pelle." This was a small isolated tumor in a woman, aged 23, situated in the cutis and subcutis of the thigh, which had recurred twice after excision. Careful histologic study showed this tumor to be composed of large and small fusiform cells and large giant cells of variable form, with voluminous nuclei differing from the ordinary giant cell and Robin's myeloplaxes and resembling more those of bone marrow. A number of instances of multiple giant cell sarcomas of the skin were collected by Crocker[5] in 1903, and a few additional cases have been reported since then. Odstrcil[6] reported a rare case of primary multiple giant cell sarcoma of the skin with metastases in the inner organs in a 6 months old boy. Brotman[7] has described a case under the title "sarcoma cutis gigantocellulare" occurring in a child of 11 with yellowish-brown tumors resembling juvenile xanthoma situated on the eyelids, neck, elbows and groins. Microscopically, those showed large numbers of multinucleated giant cells among the spindle cells.

It is evident, therefore, that a true giant cell sarcoma of the skin, that is, one in which giant cells are present in large numbers and are an essential element in the development of the tumorlike spindle or round cells, must be very rare. Pathologists have not definitely determined the origin of the giant cells in sar-

2. Unna: Histopathologie der Hautkrankheiten, 1894, p. 754.
3. Rahel-Zipkin: Virchows Arch. f. path. Anat., 1906, **186**, 240.
4. Pasini: Gior. ital. d. mal. ven., 1912, **46**, 353.
5. Crocker: Diseases of the Skin, Ed. 3, 1903, p. 1019.
6. Odstrcil: Arch. f. Dermat. u. Syph., 1912, **111**, 869.
7. Brotman: Rusk. Jur. Kozhn., 1, ven. polienz., 1912, **33**, 137; abtsr., Jour. Cutan. Dis., 1913.

coma. Mallory[8] suggests that there are two types of giant cells: (1) the giant cell due to multiple mitoses, signifying rapid proliferation under favorable nutritive conditions and representing a true tumor cell, occurring in some forms of fibrosarcoma and (2) the giant cell due to fusion of endothelial leukocytes attracted to the tumor by foreign bodies like fat crystals or lime salts around which they have fused. This type is found in the so-called giant cell sarcoma of bone and in the "epulis" tumor of the lower jaw, which is thought by some pathologists to be inflammatory tissue full of giant cells. A few instances of giant cell sarcomas outside of the skeletal system have been recorded in the tendon sheaths of the hands, the uterus, mammary gland, and the subcutaneous tissues. Some of these cases, described as myelomas of the tendon sheaths, have been found to contain cholesterin, and therefore belong to the xanthomas. In every case of sarcoma of the derma or subdermal tissues containing large numbers of giant cells, some possible connection with the underlying bone substance should be sought for in accordance with the theory of embryonal rests or embryonic defects.

REPORT OF CASE

CASE 2.—*History.*—F. W., man, aged 22, was first seen in October, 1915, in consultation with Dr. Irving F. Stein. The patient presented a bean-sized nodule in the skin above the left elbow. Two months previously the arm had been burned by a belt, causing a wound which closed and opened alternately, discharging a dark bloody fluid. Four weeks later he first noticed the cutaneous nodule at the site of the injury. The nodule was bluish-red, and had a hard pearly border, and a crater in the center admitting a probe. There was a slight bloody discharge, but no pain or tenderness. The nodule was rather deeply situated in the cutis. The regional glands were not enlarged. Examination of the rest of the body was negative. The blood and urine findings were normal. The nodule was widely excised under cocain and epinephrin, and serial sections in paraffin were made. The wound healed within ten days, and there has been no recurrence.

Histologic Examination.—A solid mass of tumor cells occupied the entire corium and extended into the subcutaneous tissue. The epidermis overlying the tumor was thinned and ulcerated at the center of the growth. At the periphery, the infiltrating character of the growth was clearly seen (Fig. 4), small bundles of tumor cells growing between and destroying the collagenous bundles and lymphatic spaces. Under the high power, typical oat-shaped cells were seen, closely massed together in interweaving bundles with little intercellular fibrous tissue. No mitoses were found. All the normal cutaneous appendages as well as the elastic tissue were destroyed in the zone of growth of the tumor cells. Beyond the periphery of the tumor, both elastic fibers and glands were preserved. There was considerable hemorrhagic extravasation at the zone of ulceration, and there were numerous dilated thin-walled blood vessels around which the spindle cells were closely approximated. A small amount of golden-yellow blood pigment was deposited in the tumor cells occupying the subpapillary space. No giant cells were present. The histologic diagnosis was a pure spindle cell sarcoma of the cutis undergoing ulceration in its early stages. The interesting feature of this case was that it represented a primary spindle cell sarcoma, developing apparently in normal skin after an injury.

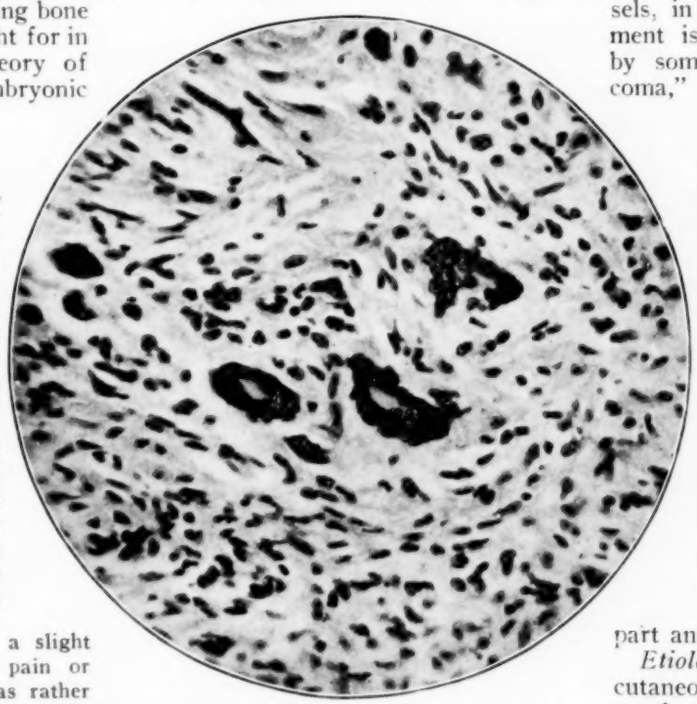

Fig. 3 (Case 1).—High power photomicrograph showing giant cells and spindle cells (× 325).

COMMENT

The literature contains scattered references to the localized types of cutaneous sarcoma, the spindle cell forms being more frequently observed than the round cell forms. Unna has described the pathologic features of these growths in great detail, and regards the fusocellular form as the main type of sarcoma involving the cutis proper. When the fibrous element is pronounced, the term "fibrosarcoma" is employed, and this represents the most benign type of sarcoma, which frequently originates in a scar or fibroma, grows slowly, and seldom metastasizes. The tumors which arise apparently from the adventitia of the blood vessels, in which the vascular element is pronounced, are called by some authorities "angiosarcoma," although Mallory and other recent writers object to this term. According to Johnson,[9] the true fibroblastic sarcomas arise in the connective tissue of the corium or subcutaneous tissues and are composed of small or large spindle cells. The small round cell sarcomas he regards as lymphoid in character and the large round cell forms as endotheliomatous. In general the cells of the sarcomas are subject to great morphologic variation, and may appear spindle shaped in one part and round in another.

Etiology.—The origin of the cutaneous sarcomas is as obscure as that of other tumors. The recent experimental studies on the cultivation of sarcoma cells in vitro and on the growth of fowl sarcoma have supplied many interesting data but have not cleared up the etiology. The chicken sarcoma of Rous is considered by some pathologists as an infective granuloma. The most recent observations which may throw some light on the etiology of sarcoma are those of Leyton.[10] He inoculated rats with an emulsion of rat sarcoma passed through a Berkefeld filter, and in four out of eighteen rats a tumor developed exactly like the spindle cell sarcoma. He considers the active cause of sarcoma a streptothrix, the spores of which pass through a Chamberland filter.

The chief fact to be emphasized in the etiology of the solitary cutaneous sarcomas, judging at least from the literature, is that they rarely originate in the normal cutis but usually begin in some preexisting lesion, such as a congenital nevus, scar, fibroma, lymphangioma, sebaceous cyst, dermoid cyst, "wart" or other

8. Mallory: Pathologic Histology.

9. Johnson: Jour. Cutan. Dis., 1901, **19**, 305; 1903, **21**, 23.
10. Leyton: Lancet, London, March 4, 1916.

benign growth. The malignant transformation is probably in many instances due to irritation or trauma. In neither of our cases was a history of a preexisting abnormality obtainable, and an injury was definitely related to the malignant change in the one case. It has been argued that the experimental proof of the development of a malignant tumor as a result of injury is lacking; but clinical evidence, particularly in the case of the sarcomas, shows that a single trauma is of great etiologic importance. Seckel[11] has reported the sarcomatous degeneration of a benign "wart" in the arm of a girl aged 20, as a result of irritation. Heredity may play a possible rôle, and a number of cases of congenital sarcoma of the skin are recorded. The development of a cutaneous sarcoma early in life is also a not infrequent occurrence. Dubreuilh[12] has personally observed five cases of round cell sarcoma of the skin in young children from 1 to 7 years of age, three of which began as isolated tumors. He has collected numerous reports of other cases of congenital nonpigmented sarcoma from the literature, most of which were, however, disseminated tumors. These cases show that the theory of embryonic defects must be considered in the etiology.

Clinical and Pathologic Characteristics.—According to the observations of Funk,[13] Perrin,[14] Unna,[2] Johnson[9] and others, the primary spindle cell sarcoma begins as a reddish-brown or blue-brown, pea-sized macule or as a flat nodule situated in the corium. The fibrosarcoma begins frequently as a white or yellow platelike nodule. The regions of predilection are the head, neck and extremities, rarely the trunk. Further development of the tumor produces either a hard smooth node, or a soft, fungating or even pulsating tumor. Occasionally a diffuse infiltration of the skin results by involvement of the subcutis. The tumor is usually pea to cherry sized, but may even grow to the size of an orange. When the tumor begins in the subcutis it may at first be a mobile nodule with a fibrous capsule, and is easily shelled out. The overlying skin may be unchanged, but later becomes red from pressure. Ulceration is quite frequent, and may take place early. The cutaneous sarcoma enlarges both by proliferation of its own elements and by invasion of the surrounding tissues. It may exist as a localized lesion for months, and dissemination takes place by the formation of secondary nodules in the neighboring or distant skin, subcutis and rarely skin nodes and internal organs. Vascular metastases are more common than are lymphatic. Johnson[9] gives as the six clinical features of the spindle cell fibrosarcomas: (1) slight malignancy; (2) absence of metastases in skin nodes and viscera; (3) extremely slow spread; (4) tendency to progression in one spot with spontaneous involution in others; (5) absence of pigment, and (6) superficial character of ulceration if any is present.

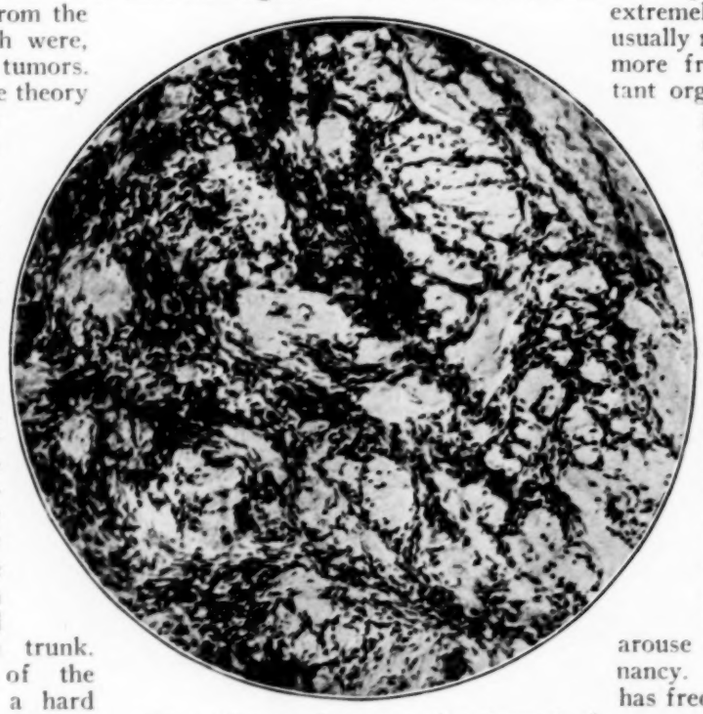

Fig. 4 (Case 2).—Low power photomicrograph of early spindle cell sarcoma of the skin showing infiltrative type of growth at border of lesion (× 110).

The clinical features of the primary round cell sarcomas of the skin belong to two types, according to Hazen[15]: 1. A pale red vascular nodule begins in the apparently normal skin, which bleeds easily and tends to ulcerate. 2. A nevus breaks down and undergoes malignant change. Perrin describes a type of round cell sarcoma which begins in the hypoderm as an isolated tumor, and is fatal within two years. Pusey[16] has observed two instances of solitary round cell sarcomas, both occurring on the finger. In one of these cases death occurred within twelve months after excision. Darier[17] has recorded a small round cell sarcoma involving the nose which clinically resembled a rhinoscleroma. In general these tumors are extremely malignant, growth is usually rapid, and metastases are more frequent both in the distant organs and in the regional glands. The small round cell forms are especially malignant.

Diagnosis.—The nonpigmented solitary sarcomas have such variable clinical characteristics that the diagnosis can usually not be made definitely without microscopic confirmation. It is particularly important to differentiate localized granulomas, g u m m a, epithelioma, fi b r o m a, hemangioma and other benign growths of the skin. The rapid growth and breaking down of a fibroma should at once arouse the suspicion of malignancy. Granuloma pyogenicum has frequently been mistaken for sarcoma. In a case occurring in the practice of Dr. Joseph Zeisler, a young girl presented a curious, pedunculated dark red, friable tumor of the eyelid, which bled easily and might readily have been mistaken for sarcoma. The microscope showed the typical granulation tissue characteristic of granuloma pyogenicum. Wherever there is any doubt about the diagnosis of a solitary cutaneous neoplasm, the tumor should be excised as a whole and examined microscopically.

Prognosis.—The spindle cell tumors appear to be less malignant than the round cell forms. The excellent results obtained in our two cases show that early surgical removal is frequently followed by cure. The statistics of Bloodgood[18] are interesting in this connection. In a series of six sarcomas arising from congenital nevi there was only one cure. In eight sarcomas designated as hemangiosarcomas, there were

11. Seckel: Centralbl. f. allg. Path. u. path. Anat., 1906, p. 515.
12. Dubreuilh: Ann. de dermat. et de syph., May, 1911.
13. Funk: Monatschr. f. prakt. Dermat., 1889, pp. 18 and 60.
14. Perrin: La pratique dermatologie, 1904, **4**, 20.
15. Hazen: Skin Cancer, St. Louis, 1916, p. 138.
16. Pusey: Principles and Practice of Dermatology, 1907, p. 896.
17. Darier: Ann. de dermat. et de syph., May, 1911.
18. Bloodgood: Progr. Med., December, 1912.

no cures. Of nineteen skin sarcomas originating in scars, six of the spindle cell variety were cured by operation. The cases not cured were of the round or pure spindle cell type. Bloodgood states that the first appearance of a growth in scar tissue differing from a keloid is an indication for radical removal of all scar tissue. Seven cases of sarcoma originating in fibroma were treated, with four permanent cures, all of the fibrospindle cell variety.

Treatment.—Prevention is of great importance, and early surgical removal of all benign growths of the skin exposed to irritation or trauma is indicated. After a sarcoma has developed, immediate surgical removal is preferable, and the excision should be made as wide as possible. This should be followed by treatment with radium or the Roentgen ray to prevent recurrences. In the treatment of inoperable sarcoma, the results of Wickham and Degrais with radium have been sufficiently encouraging to justify the use of this agent.

CONCLUSIONS

1. Primary spindle cell sarcoma of the skin may exist for a considerable time as a localized lesion.
2. Early excision will prevent the dissemination of a localized cutaneous spindle cell sarcoma.
3. A primary nonpigmented sarcoma of the skin composed of spindle and giant cells is a rare type of cutaneous sarcoma.
4. The diagnosis of nonpigmented sarcoma cannot be made with certainty without microscopic confirmation.

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ABSTRACT OF DISCUSSION

DR. J. M. KING, Nashville, Tenn.: Three years ago a man came to me with a nonpigmented nodule on the left forearm, midway between the elbow and wrist, located in the skin. He habitually picked up the nodule and rolled it between thumb and finger. He observed that the tumor slowly enlarged. I could not make a clinical diagnosis, nor could a surgeon whom we had in consultation, but for fear of sarcoma, we advised excision, microscopic examination, and, if needed, treatment with Roentgen ray. The pathologist reported a "small spindle-cell sarcoma." The patient received Roentgen-ray exposure. Dr. Bainbridge of New York saw this man last summer, and afterward wrote me that there was no recurrence, but considerable atrophy about the site of the lesion, and advised excision of the scar.

May I be permitted to report an unusual case, probably of sarcoma? The patient, a man, aged 55, had a lesion which started on the left hip just below the crest of the ilium. After two or three years a superficial ulceration set up, spreading to the size of the palm. The border was very irregular and the ulcerated part extremely painful and tender. He was seen in New York by Dr. A. R. Robinson and Dr. Prince Morrow. Syphilis was their diagnosis. I made a biopsy, but the pathologist could not make a diagnosis. The patient could not take the iodid prescribed by Dr. Robinson. Without the administration of any medicine, I applied the Roentgen ray, with a perfect result as far as curing the lesion was concerned. But two years ago, ten years after he was well, an inguinal gland enlarged, was removed and examined, with the report of sarcoma. Later another sarcomatous gland was removed. Now there are two enlarged glands lying just inside the pelvis. The old scar is smooth and well and there are no other signs of primary sarcoma.

Fig. 1.—The patient; note flexion and rigid adduction of thighs.

STILL'S DISEASE

WITH REPORT OF A CASE *

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The first recorded cases of chronic arthritis in children were the fifty reported by Moncorvo in 1878. Then Still[1] of London, in 1897, reported twenty-two cases, in twelve of which there was a special clinical picture different from the ordinary forms of so-called "chronic rheumatism." To these his name was given. Following Still's description, further cases were described by Weber, Whole, Paynton, Hingston and Newlin. By 1904, twenty cases had been described in England and only one in Germany. Piske[2] reported two cases in 1913 from the Kinderklinik at Kiel. He ascribed the scarcity of the German cases to the fact that the clinical picture had been relatively unknown, and in most textbooks was not mentioned, or if so, briefly.

This chronic deforming disease of the joints in children bears a great many points in common with the arthritis deformans of adults. It becomes a matter of some difficulty to place it properly in our present unsatisfactory classification of chronic arthritis, as we are beginning to realize that arthritis is generally if not always secondary to a process elsewhere in the body, and so far no definite etiology has been proved for Still's disease. It was originally described by Still as a clinical entity and by some is still held to be such. Garrod[3] is inclined to place these cases in the group of rheumatoid arthritis occurring at an early age, but makes the reservation that there are some arguments to support the view that they are a distinct

* Read in part and patient demonstrated before the City and County Medical Society, Portland, Ore., Jan. 17, 1917.

1. Still, G. F., in Albutt and Rolleston: System of Medicine, Ed. 1, 1897, **3**, 17; Med.-Chir. Tr., London, 1897, **80**, 47.
2. Piske, J.: Med. Klin., 1913, **9**, 2.
3. Garrod, A. E., in Albutt and Rolleston: System of Medicine, 1910, **3**, 17; Proc. Roy. Med. and Chir. Soc. London, 1896-1897, N. S., **9**.

malady. McCrae[4] regards it as arthritis deformans occurring in childhood, the only question being at what age to draw the line between the two. Elsner[5] and Osler concur in this opinion, stating that the trend of modern opinion is that these arthritic conditions are dependent on an infectious process. Still thought it probably was a form of infectious arthritis due to the invasion of some micro-organism. The presence of pleural and pericardial adhesions, the enlargement of the spleen and glands, fever and acute symptoms are in favor of this view. Ibrahim[6] regards it as of tuberculous origin related to the cases which Poncet[7] has described. Levi and Rothschild attribute the condition to a functional disturbance of the thyroid gland; but the therapeutic test of gland feeding has given no results. With regard to the theory of sepsis, blood cultures taken during the acute febrile stages of the disease have proved negative. Heredity, bad feeding, privations and faults of hygiene are not prominent in cases reported. Pathologically there is nothing distinctive about the disease. The picture is one of periarticular enlargement with little bony change other than some rarefaction. There is no osteophyte formation nor erosion of cartilage. The glands and spleen show enlargement, but on gross section appear normal. A lymph gland removed during life showed microscopically merely a hyperplasia of the lymphoid cells with increase also in the plasma cells such as we are accustomed to see in the beginning of Hodgkin's disease.[8]

Fig. 2.—Deformity of fingers and wrist joint; note rarefaction of ends of long bones and underdevelopment of diaphyses of radius and ulna.

REPORT OF CASE

History.—A girl, aged 16 years, born in Portland, Ore., with unimportant family history; had been born normally and had developed normally up to the fifth year. Measles had been her only illness. There was no history of tonsillitis, chorea, endocarditis, or other acute infection. At the age of 5, she had an attack of what was called "rheumatism." She seemed to recover completely from this, and remained well for the following year. At the age of 6, her present symptoms began. The disease began with fever, sweats and rheumatic pains. There were swelling, tenderness, and limitation of motion of the small joints of the fingers. The process slowly spread until it involved in order the knee joints, elbow, neck, feet, and lumbar spine. It finally involved the temporomaxillary and hip joints. For the past year and a half she had been unable to open the jaw widely. During these years there had been spells of fever when all her symptoms became worse, and remissions when she was fairly comfortable. The deformity came gradually with the progress of the disease. She had not walked in nine years. The patient's mother herself noticed the swelling of the glands in the region of the joints affected; she said that at times they reached the size of a small walnut and were plainly visible. Aside from the joint symptoms, the child had always been weak and pale. She had not developed according to her years, and appeared as a child of 8 or 9 years of age. The secondary sex characteristics were absent. The mentality had always been clear. She had been troubled with headaches and toothaches.

Physical Examination.—In the midst of an exacerbation, the patient appeared weak, pale, acutely ill and in pain. There was hyperhidrosis. She was fairly well nourished. The head was large and held rigid on the neck. The temporal and parietal bosses were prominent. There was moderate exophthalmos. The mouth could be opened only about one third. The tongue was coated. The breath was offensive. Inspection of the pharynx and tonsils was impossible on account of limitation of motion of the jaw. The teeth and gums were in miserable condition. There was intense pyorrhea alveolaris. The upper incisors were carious and worn down to short stumps. There was evidence of decay in the other teeth. There was general glandular enlargement involving the cervical, maxillary, epitrochlear, axillary, and inguinal lymph nodes. The glands in the neighborhood of the affected joints especially were enlarged, some to the size of a hazelnut. They were firm, discrete, and not tender. There was symmetrical enlargement of both lobes and isthmus of the thyroid; there was no bruit or thrill. Examination of the heart revealed precordial heaving, with exaggeration of the apex impulse. There was a presystolic thrill at the apex. The heart was enlarged to the right and left. There was a presystolic murmur ending in sharp shock of the first sound, which was then followed by a soft blowing systolic murmur transmitted to the axilla. The action was regular. The aortic and pulmonic second sounds were exaggerated. The abdomen was full and distended, with no masses or tenderness. The liver was felt one finger's breadth below the free border of the ribs, and was firm, smooth, and not tender.

Fig. 3.—Clubfoot deformity.

There was stiffness of the cervical spine. The head was held erect. Motion of the jaw was limited. There was fusiform swelling and tenderness of the shoulder joints with pain on motion. The swelling appeared to be periarticular. The condition of the elbows, wrist joints, and

4. McCrae, Thomas, in Osler and McCrae: Modern Medicine; Arthritis Deformans, THE JOURNAL A. M. A., Jan. 9, 1904, p. 94; Jan. 16, 1904, p. 161.
5. Elsner, H. L.: Monographic Medicine, **4**, 110; **6**, 1088-1092.
6. Ibrahim: Handbuch der Kinderheilkunde.
7. Poncet, A., and Leriche, R.: Gaz. d. hôp., 1912, pp. 85, 485.
8. In addition to the references already given, the following will be found of interest:
Bulletins of the Committee for the Study of Special Diseases, Cambridge.
Nathan: Am. Jour. Med. Sc., 1906, **131**, 55; ibid., 1906, **132**, 857.
Pribram, A., in Nothnagel: Specielle Pathologie und Therapie, 1902, **7**, Part 5.
Willner, O.: Centralbl. f. d. Grenzgeb. d. Med. u. Chir., 1911 **14**, 241-249; 289-293; 321-325.

interphalangeal joints was similar. The elbows were flexed at 90 degrees and almost immobile. The wrists also were flexed. The fingers were deformed. There was scoliosis of the lower dorsal and lumbar spine with rigidity simulating "poker spine." The thighs were flexed on the abdomen and held in rigid adduction. The legs were flexed on the thighs

Fig. 4.—Elbow joint in full extension.

with almost complete immobility. In the knee joints there was the same deformity as described in the other joints. There was double rigid flat foot with deformity of the toes. In no joint could crepitus be elicited. There was extreme muscular atrophy of the arms, thighs, and legs.

Blood examination revealed: hemoglobin, 55 per cent.; red blood cells, 4,500,000; white blood cells, 13,800; polymorphonuclear neutrophils, 61.5 per cent; polymorphonuclear eosinophils, 2 per cent.; large and small lymphocytes, 29 per cent.; large mononuclears and transitionals, 7.5 per cent. The urine was clear amber, acid, with specific gravity of 1.015, and a very faint trace of albumin; sugar was absent; there was a very faint trace of indican. There were microscopically a few white and red blood cells. The Wassermann test was negative. The von Pirquet tuberculin test was negative.

Roentgenoscopy revealed no new bone formation or ankylosis in any of the articulations. The joint surfaces appeared intact. The swelling in each case was periarticular. The epiphyseal ends of the bones seemed unduly large in comparison with the narrow undeveloped shafts. The epiphyses also showed a marked rarefaction of the bony substance such as has been described in the cases of so-called rheumatoid arthritis. Roentgenograms of the teeth revealed abscesses at the roots of each of the incisor teeth. It was impossible to obtain satisfactory plates of the other teeth.

Further Course of the Disease.—The patient came under my direct care Oct. 31, 1916. She was at that time in one of her periods of pyrexia. Her daily temperature ranged from 101 to 102 F. The joints were tender and swollen and she seemed to be in great pain, especially in the hip joint and the lumbar spine. Sweating was profuse. The lymph glands in the neighborhood of the joints were all greatly enlarged, and the spleen likewise. This condition lasted for several weeks, when there was slight spontaneous abatement of the symptoms. The child had never been entirely free from pain in all the years of her illness.

In the search for a definite focus of infection which might have been responsible for the joint changes and other disease symptoms with which the patient had been afflicted, attention became focused on the possibility of a long standing oral sepsis. On account of the extreme pyorrhea alveolaris, the visible decay of the teeth and the Roentgen findings, it was decided to remove this source of infection. The patient was accordingly put under ether anesthesia and all the teeth showing any signs of decay—about eighteen in number—were extracted, Jan. 25, 1917. In each case there were found either carious roots or small abscesses about the roots. Cultures were taken from several of these abscesses and put on glucose-serum-agar slants.

They each showed a staphylococcus and a streptococcus in chains and pairs. The 2 days old mixed cultures were washed and inoculated intravenously into three rabbits. On the fifth day two of the rabbits were slightly lame. Rabbit 1, which received the larger injection, was lame in the front legs and was killed. Necropsy revealed negative urine; increased serous fluids in the elbow joints; slight vegetations on the mitral valve; white annular plaques—about eight or ten—in the intima of the ascending aorta; the latter were the only lesions of this type ever encountered in a routine examination of several hundred rabbits inoculated with various cultures. The lungs were slightly hyperemic. Cultures from the elbow gave cocci in pairs. Rabbit 2, which

Fig. 5.—Lateral view of knee joint; note rarefaction of epiphyses of bones and periarticular swelling.

received a smaller dose, was slightly lame in the front legs. It was killed. Increased serous fluid in the wrist joints and shoulders were found, but no pus. There were no other lesions. Cultures from the shoulder were negative. Cultures from the wrist revealed a growth which was extremely slow in broth, but which grew rapidly on enriched agar, and had the following characteristics:

The stroke showed abundant white, smooth, waxy, raised, glistening growth, and after standing a few weeks, it turned to an orange yellow. Microscopically it occurred in pairs and short chains, but also manifested a division in two planes. Cultural characteristics were: no gas in dextrose, levulose, mannite, maltose, inulin, lactose, or saccharose, but distinct acid reaction in dextrose and levulose and slight in maltose.

Fig. 6.—Lateral view of clubfoot deformity.

The culture was kept for several weeks, after which a third rabbit was inoculated. It promptly developed a purulent arthritis from which the original organism was recovered. Further work will be done on the nature of this organism.

Vaccine Treatment and Result.—A vaccine was prepared from the cultures, and treatments were at once instituted, starting with a small dosage and gradually increasing until a dose of 600,000,000 was reached, as follows:

March 3, 1917, 60,000,000; March 14, 120,000,000; March 24, 240,000,000; April 19, 360,000,000; April 25, 480,000,000; May 1, 600,000,000; May 7, 600,000,000. With the exception of the injection of April 19, when the patient suffered a local reaction, headache, malaise, pain in the right knee joint but no fever, the vaccine treatments have caused no focal or constitutional reaction. The improvement in the patient's condition following the oral cleaning and the institution of the vaccine injections has been quite marked and most gratifying. Since the end of January there has been a complete abatement of all the acute symptoms. There have been no spells of fever or rheumatic pains. The lymphadenitis has subsided, with the exception of a few axillary nodes which are still palpable. The spleen also is still enlarged. The child's general condition has become vastly improved, her weight has increased, and she has attained a state of vigor and well-being which would better allow operative interference for her deformities should such orthopedic measures be considered. This period is the longest that she has ever remained without fever or rheumatic pains, and while it is rather premature to say what the end-result will be, still I deem it worth while to give this preliminary report in view of the striking improvement.

COMMENT

Evidence and deductions made from one case are necessarily inconclusive. I do not claim to have discovered a specific etiologic agent for this most unfortunate and rare affliction. I should, however, like to add my voice to those who regard this disease as one of the many pathologic states resulting from focal infection. The case corresponds in almost every detail to those of Still's classical description, and we are able to demonstrate in addition a potent source for toxemia. Whether this oral sepsis was causative in the case or merely an incidental feature I am unable to state with any conviction. Significant facts are the arthritic changes produced in rabbits when inoculated with cultures from the child's mouth, and the improvement in her condition which was demonstrated after removal of the septic focus. It may be that some day Still's idea as to the specificity of this disease will be substantiated. Until then, let us act on the assumption that focal infection can and does produce a similar syndrome.

1117-1118 Selling Building.

EXOSTOSES, OR GONORRHEAL SPURS OF THE OS CALCIS

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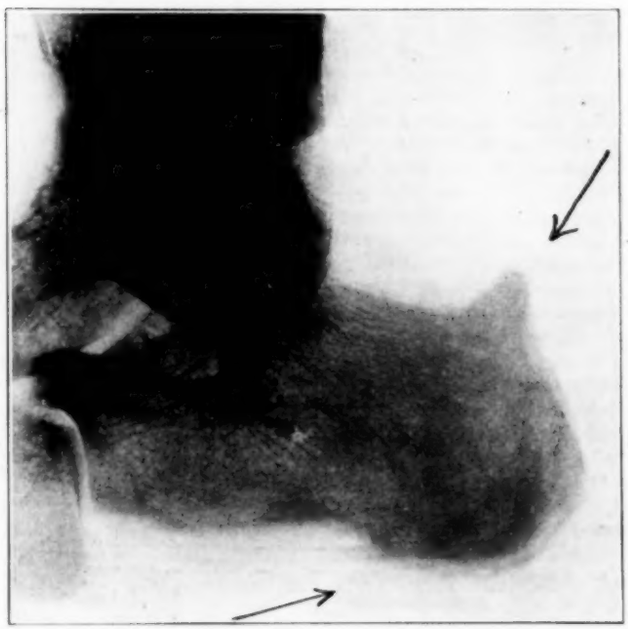
There is little to be found in the literature concerning spurs of the os calcis due directly to gonorrhea, though each textbook on orthopedic surgery touches



Gonorrheal exostoses of os calcis.

on it lightly. The condition is painful to the patient, and is often placed under the erroneous diagnosis of arthritis.

Three patients have come under my observation suffering from this affection, giving histories of good health and no discomfort previous to an attack of gonorrhea. Other etiologic factors which must be thought

of in connection with painful heels are flat foot, syphilis, achillobursitis, etc.

"Ossifying periostitis leads to the formation of bony excresences, exostoses or osteophytes. First there is a proliferation of the osteogenic layer of the periosteum, then partial ossification, and finally complete bone formation with firm attachment to the underlying bony structure. The osteogenesis is essentially the same, but the periosteal bone depositing cells are working in a tissue the seat of productive fibrosis, so that the calcium salts are not laid down in an orderly manner along the surface of the bone. These changes may be circumscribed or diffuse, and cause irregular elevations or general thickening of the bone. The exudate may be merely fibrous tissue or a soft albuminoid material, usually leading to periosteal thickening, but occasionally invading the bone or marrow."

The usual modes of invasion of the gonococcus to remote bony structures are either lymphogenous or hematogenous. Other bony structures are not exempt from invasion, and especially is this true of the vertebral column. The print of a roentgenogram reproduced herewith will give an outline of the body exudate which caused this patient much discomfort to even put his foot down. It also gives a clean-cut diagnosis of the condition.

The treatment consists in cure of the gonorrheal infection of the urethra and its accompanying organs, and removal of the exudate by operation.

REPORT OF CASE

A farmer, aged 25, white, single, with negative family history, had had the usual diseases of childhood, but had otherwise been healthy until two years before I saw him, when he contracted gonorrhea. With the onset was a profuse discharge and a swelling of the penis. About one week afterward he had to go to bed on account of arthritic pains in both ankles and severe pain in the back and shoulders. The ankles were swollen and very tender. The pain left the shoulders and back in a few days, but the ankles kept the patient in bed for eight weeks. When he was up and walking again the left heel seemed to be quite sensitive to pressure, and since then it had been an effort for him to walk on it. Roentgenoscopy revealed the cause. He was treated by the urethra regularly since then. I first saw him, Jan. 12, 1917. There were pus and shreds in all three glasses of urine. Microscopically there were gonococci in the secretion from the prostate and the vesicles.

The patient gave a negative history of syphilis, but the Wassermann reaction was ++++. He was put on antisyphilitic treatment, and the gonorrhea was treated vigorously for four weeks. He went back home feeling much better, except that the left heel had not improved in the least. He was advised to return and have the bony deposits removed, as one of the previous patients under my observation had done for the same condition, with complete recovery.

CONCLUSIONS

1. The bony structures of the body are sometimes invaded by the gonococcus which cause pathologic changes, with discomfort.

2. Gonorrhea is credited with many distressing deeds, and justly so; in fact, it is not held responsible as often as it should be.

Taking Advantage of Home Climate.—Many live, work and sleep in a quite unsuitable atmosphere, and at the same time the outdoor atmospheric conditions may be very good. A person may live in a locality with a favorable climate and yet actually himself live in a very inferior atmosphere. Indoor climate and outdoor climate are two quite different things, and usually the outdoor climate is far the better.—Asst. Surg.-Gen. J. W. Trask, *Public Health Reports.*

Special Article

MEDICAL SERVICE IN THE BRITISH AREA ON THE WESTERN FRONT

THOMAS HERBERT GOODWIN, C.M.G., D.S.O.
Colonel, Army Medical Service
ENGLAND

Since coming to the United States some two months ago, I have been asked numerous questions with regard to the conditions of warfare on the Western front, the nature of medical work, the necessity for medical men, etc. Some of the senior medical men in this country have suggested to me that I should write a short article for THE JOURNAL, giving information on the foregoing points; it is very difficult — if not impossible — to realize fully the strenuous and difficult conditions of modern warfare when one is far removed from the area of conflict, and it is consequently no matter for wonderment that a considerable amount of misconception exists with regard to the present campaign.

ORGANIZATION

The system in the British army for the collection and evacuation of the wounded from the front line to the base hospitals is briefly as follows:

With each battalion of infantry, regiment of cavalry, or brigade of artillery is a medical officer with a small detachment of medical and sanitary personnel, and suitable medical and surgical equipment. Before an action this officer forms a "regimental aid post," in a dugout or position of shelter, to which the wounded of his regiment are brought by the regimental stretcher-bearers. Here they are attended to, dressings are applied, fractures immobilized, etc., and, after a very short stay — probably not more than half an hour — they are removed by the personnel of the field ambulance *bearer* division to the advanced or main dressing stations, which are formed by the field ambulance *tent* division. The means of ambulance transport with the field ambulance bearer division consists of: twenty-seven stretcher squads, each consisting of four bearers with a stretcher; seven motor ambulance wagons, and three horse ambulance wagons.

From the dressing stations the wounded are convoyed by the motor ambulance convoy, which consists of fifty ambulance cars with four medical officers, to the casualty clearing stations. At the casualty clearing stations a very large amount of surgery is carried out. Patients with such wounds as those of the abdomen or head are taken to the casualty clearing stations from the front as quickly as possible, in order that early operation may, if possible, be carried out under advantageous circumstances.

A casualty clearing station is always situated close to a railway station, and the wounded are conveyed thence by ambulance trains to the stationary and general hospitals on the lines of communication and at the base. It is difficult to lay down definite rules as to the distances between the various units mentioned above, as these distances vary so much with local conditions and the military exigencies of the time being; but the following may be accepted as an average under normal conditions:

1. Front line trenches to regimental aid post, 500 yards or more.

2. Regimental aid post to advanced dressing station, half a mile to 1 mile.

3. Advanced to main dressing station, 1½ miles.
4. Main dressing station (field ambulance) to casualty clearing station, 5 miles.

SUPPLIES

Our medical and surgical equipment and supplies are obtained by the various units, as required, from the advanced and base depots of medical stores, which are medical units administered entirely by the medical service.

The amount of medical supplies required by an army in modern warfare is very large indeed.

To mention a few details I may say that, up to the end of last year, we have furnished our armies with 37½ millions of bandages, 35,000 miles of gauze, 3,000 tons of absorbent cotton and lint, 243 complete Roentgen-ray outfits, etc. In addition to these medical and surgical supplies there are many — almost innumerable articles which, although not in the authorized scale of equipment for hospitals, are nevertheless of immense value in adding to the comfort of a hospital and the consequent well-being of the patients, and everything which improves the physical and *mental* condition of a patient conduces toward his rapid recovery to health and consequently his early restoration to the fighting line.

Among such articles I might mention pianos, phonographs, books and pictures, games, papers, warm slippers and special articles of clothing and many other comforts.

THE RED CROSS

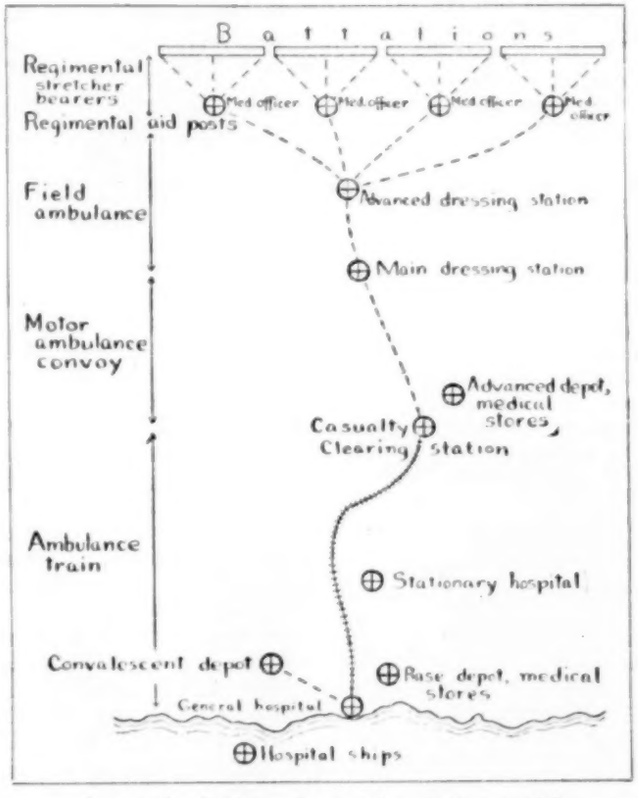
As a medium for obtaining such articles, which to my mind are of immense value to the efficiency of every hospital, there is the magnificent Red Cross organization, which is always ready to give us every possible assistance, and whose aid also in furnishing motor ambulance cars has been immense.

The work of the Red Cross in assisting the medical services in time of war is of the utmost value.

DUTIES OF MEDICAL OFFICERS

A few words as to the duties and life of a medical officer in the various units:

The medical officer attached to a regiment has a happy — and also a busy — life. Sanitation and disease prevention will occupy a considerable portion of his time, especially during the periods when his unit is not engaged in actual fighting. He will find that an earnest desire for the welfare of the men, combined with a modicum of tact, will insure any of his sanitary recommendations being cordially received and promptly acted on.



System of collection and evacuation of the wounded.

His endeavors will invariably receive the fullest meed of gratitude from both officers and men.

When his unit is in action he should on no account lose touch with it, and even if, at times, he can do little more than first aid, yet his presence will be of immense value and moral support to the troops with whom he is working.

The officers of the field ambulances have a strenuous life, and their work is interesting and responsible in the highest degree. They see everything that is going on, and, being near the fighting line, they see plenty of the stress and excitement of a modern battle.

The work which they do is of extreme value to the welfare of the patients, for on the initial treatment of the wounded in the dressing stations is dependent, to a considerable extent, their subsequent progress toward recovery.

For an officer who is keen on more purely professional work, the casualty clearing stations afford an immense scope in the direction of urgent surgery, abdominal and cranial operations, etc., while the base hospitals offer an enormous range of professional work and experience of every description, both medical and surgical, in addition to the numerous special departments of Roentgen-ray work, bacteriology, etc.

As regards sanitation, that subject is always with us wherever we may be, from the front line to the base, so that, whatever a medical officer's individual tastes may be, and in whatever part of the field he may find himself, I think that he will always discover scope for his energies and a life full of absorbing interest.

I may state here that every possible endeavor is invariably made by the authorities to meet the wishes and capabilities of the individual officer, so that — so far as military exigencies permit — every officer may find himself allotted to a post suited to his capabilities and attainments.

There is at present a considerable shortage of medical men in Europe, and this shortage has been seriously felt by Great Britain. The following few facts may serve to explain some of the causes of this shortage:

1. Great Britain has at present on hand five separate campaigns — East Africa, Mesopotamia, Egypt, Saloniki and France.

2. The British armies have increased from a comparatively few thousands to millions, and the medical service has had to expand correspondingly.

3. The number of hospital beds in the British Isles alone is at present over 300,000, and this number does

not take into consideration the numerous convalescent homes and depots. The number of beds in France is large and is steadily increasing. In Malta alone we have over 27,000 beds, and in Egypt, Saloniki and the other theaters of war are large numbers.

4. We are now maintaining in the field a large number of medical units, for example, over 300 field ambulances, 100 stationary and general hospitals, besides hospital trains, ships, etc.

5. While not approaching the huge figures which one sometimes hears of, losses in the medical service are still considerable. On the western front, from the commencement of the war up to date, we have had 195 medical officers killed in action, and 707 wounded, while there have been sixty-two deaths from illness.

Taking all these facts into consideration, it may readily be understood that we are, in Great Britain, feeling a serious shortage of medical men, and it will not cause surprise when I state that in several districts in England there is only one physician to every 5,000 inhabitants, and some districts in which the ratio is only 1 : 6,000.

One of my duties when I came over with Mr. Balfour's mission was to ask for medical men and nurses from the United States temporarily to assist their British allies on the western front, and to this appeal there was a prompt and generous response. Six base units from the United States are now hard at work in France, and a total of 253 medical men and 434 nurses have already gone over. The assistance which they are giving our army is invaluable, and the work which they will accomplish will be enormous.

May I venture to suggest that the medical profession of the United States should profit by our mistakes and shortcomings, and I would, with all diffidence and deference, point out that the American army will probably increase as ours has increased, and that the medical service will necessarily expand to a corresponding extent. Consequently, it would appear to be an indisputable fact that enormous numbers of medical men will be needed, and in view of this fact, and judging from the past experiences of England, early organization, and the speedy enrolment of all available medical men would be absolutely necessary in order to avoid the possibility of a lamentable breakdown in the future.

Lepers in Colombia.—The number of lepers in Colombia under detention is 4,175, according to the report of Vice Consul Claude E. Guyant of Barranquilla (*Commerce Reports*, Nov. 25, 1916), who quotes the figures of the central board of hygiene in Bogota. They are detained at the three leper stations: Agua de Dios, where there are 2,489, Contratacion, where there are 2,077, and at Caño de Loro, where there are 149. The Agua de Dios station is located near Bogota and has two hospitals for men and one for women, each with a physician and an apprentice, and each having a pharmacy. They are managed by the Sisters of Charity. There is also a general dispensary where the average number of patients treated monthly is 1,600. The three hospitals house 389 patients. The remainder live in separate houses, some of which are privately owned. There are two schools for boys and one for girls, where manual training is also taught. The Contratacion station has two hospitals with a capacity of sixty patients each. There is a school for boys and one for girls, and two asylums for the children. The medical work is in charge of three physicians, who also attend patients in the dispensary and in private houses. The Caño de Loro station is on an island in Cartagena Bay, and houses 149 patients, and has a hospital with a capacity of twelve. New and larger buildings are projected.

Clinical Notes, Suggestions, and New Instruments

OPERATIVE ANAL SPECULUM

ORVALL SMILEY, M.D., INDIANAPOLIS

The accompanying illustrations show a simple and efficient operative anal speculum devised to overcome the numerous difficulties usually encountered in the average anal operation.

It offers the following advantages:

1. It is simple and easily applied after the anus has been dilated manually.

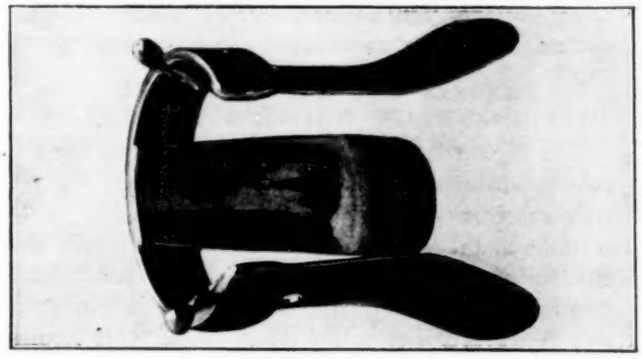


Fig. 1.—Operative anal speculum.

2. It stays in place when once adjusted.

3. It takes the place of an assistant holding a large, cumbersome instrument.

4. It keeps the caliber of the anus constant during the operation.

5. It is easily adjusted.

6. It gives large, roomy working space over any area desired.

7. It is light, produces no trauma, and is not in the operator's way.

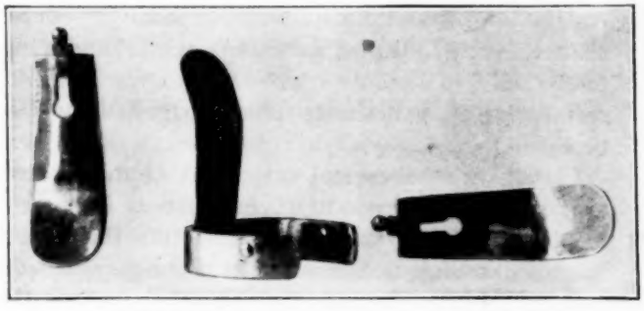


Fig. 2.—Parts of operative anal speculum.

8. The opening in the ring gives ample room for operative procedures, and affords a clear and distinct view of the field of operation.

The speculum consists of a piece of metal 1 cm. wide and 3 mm. thick, the shape of the letter C, with the opening 3 cm. wide. At the middle is attached one blade 5 cm. long. At the point of atachment it is 2 cm. wide, and at the distal end, 2.5 cm. The blades are curved outward at the distal end, the edges being rounded so they will not cut. The other two blades are attached after the first has been introduced into the anus by slipping the groove in the blade over the head of a pin on the inner side and near the distal end of the C piece. This holds the blades firmly in place. Thus they are easy of access, and are easily taken off and put on.

219 Newton-Claypool Building.

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SATURDAY, JULY 14, 1917

DANGERS AND DISADVANTAGES IN CERTAIN WAR-TIME FOODS

The high prices and the scarcity of many common food products have naturally stimulated interest in possible substitutes either for human consumption or for feeding to the domestic animals whereby foods suitable for human use may in turn be conserved. Attention has been directed from time to time in The Journal to some of the newer possibilities. Our London correspondent[1] recently noted that there are not merely a few but rather dozens of different edible wild species of the animal and vegetable kingdoms, commonly distributed, easily identified and procured, and suitable to simple processes of cooking. Mention was made of the edible frog, various species of seaweed, and nearly fifty esculent fungi. Our correspondent ventures that persons living in the country where such supplies are easily obtainable should be able to supply, during at least three quarters of the year, two thirds of their needs from the fields, woodlands, lanes and streams in their immediate neighborhood. Physicians are frequently consulted for dietary advice, and it may not be amiss to issue a warning about the dangers from certain highly undesirable foods suggested by war-time conditions.

Certain newspaper and magazines in this country are advocating the use of rhubarb leaves for greens. Advice to use the leaves as a substitute for spinach has been promulgated from at least one popular educational center. Because the rhubarb leaves contain certain substances — presumably oxalic acid — in sufficient quantity to make them toxic at times to some persons at least, and because disastrous results have followed their culinary use, the U. S. Department of Agriculture has issued a warning to housewives against using this portion of the plant for food.[2] How timely these instructions are is borne out by the report of a death from eating rhubarb leaves recently reported in The Journal.[3]

Even the edible portions of vegetables like rhubarb owe whatever dietary advantages they possess to components other than the familiar nutrients. Thus the rhubarb contains about 95 per cent. of water, and the food-fuel value of an entire pound of the edible portion cannot possibly exceed 100 calories. Desirable flavor, bulk, salts and perhaps vitamins must not be allowed to obscure the almost entire lack of the substantial proteins, fats or carbohydrates in such foods. Precisely the same consideration applies to edible seaweeds and mushrooms. The latter harbor an additional menace for those who are not thoroughly conversant with the poisonous species. Every summer brings stories of poisonings from eating toxic mushrooms. We are not attempting to minimize the agreeable relief from monotony which the use of such plant products may afford; but they should be used with a clear understanding of precisely what they do or do not contribute to the ration. They serve as vehicles rather than as sources of energy.

It may not be amiss to call attention to a semiofficial report[4] that thousands of pounds of poisonous Burma beans are being foisted on the people of the Middle West as a cheap substitute for navy beans. They are said to have been imported from the Orient. Although about the size of a medium shaped navy bean, the toxic species have a faint yellowish tinge with many fine lines or rays out from the eye like spokes on a wheel. There are some colored ones of light brown, dark brown, mottled and speckled, various shades of brown and red brown. An equally poisonous, small, flatter Burma bean is more readily distinguished from the navy bean. We are warned to guard against these two beans and also other dangerous beans from the East Indies, such as the Java, which is even more deadly.

The toxicity of the castor bean, containing the highly poisonous protein ricin has long been known. The poisonous principle of the Oriental varieties just mentioned is said to be a glucosid which yields hydrocyanic (prussic) acid through the action of suitable enzymes. Prohibition or restriction of the importation of these dangerous species into some of the countries of Europe is stated to be in force at present.

1. London Letter, The Journal A. M. A., May 12, 1917, p. 1421.
2. Don't Use Rhubarb Leaves, Weekly News Letter, U. S. Dept. Agriculture, May 23, 1917, p. 2.
3. London Letter, The Journal A. M. A., June 23, 1917, p. 1928.

THE STUDY OF CANCER IN PLANTS

In recent years the plant pathologist of the United States Department of Agriculture, Dr. Erwin F. Smith, has repeatedly expressed the belief that a diligent study of tumors in plants will help to solve the cancer problem. His fundamental conception may be thus expressed: Cancer occurs in many kinds of plants, in which it passes through an essentially parallel course of development to that of cancer in man and animals, some allowance, of course, being made for differences in the structure and development of plants. His concept is, that fundamentally plants and animals are alike,

4. Circular Letter of Information from Brookings, S. D. No. 643, June 19, 1917.

that physical and chemical laws apply equally, that is, uniformly, to all living things, and hence that discoveries relative to the fundamental cell mechanics of animals apply equally to plants, and vice versa.[1]

As Smith and his associates have discovered a relationship between certain plant tumors and a flagellate schizomycete named by them *Bacterium tumefaciens*, they have become strongly imbued with the idea of a microbiotic genesis of cancer in man. To the biologist, Smith wrote in 1916, the conclusion is almost irresistible that human cancer must be due to a parasite, and that one parasite may well be the cause of the most diverse forms, as we have seen to be the case in plants.

The study of the cancer problem has undergone so many evolutionary changes that any one who has followed the progress of experimental medical sciences may well hesitate to become unduly enthusiastic about even the most plausible of etiologic novelties. Nevertheless it is alike interesting and desirable to follow up every promising lead for new indications of modes of approach and methods of attack. The great importance of the questions at stake makes it well worth while to encounter many failures if only some progress can be made in the long run. It is interesting, therefore, to note the latest indications in the pathology of plant tumors. Smith[2] had suggested earlier that if crown gall in plants is a disease clearly due to the bacterium which he isolated, it ought to be possible eventually to go a step farther and determine what by-products of the organism are the direct cause of the overgrowth.

A beginning in this direction has now been made. It has been found that the substances produced by the *Bacterium tumefaciens* in simple culture mediums include aldehyd, ammonia, amins, alcohol, acetone, and acetic and formic acids.[3] Applications of some of these by various procedures to plants subject to crown gall have actually given rise to tumors. They are described as either vascularized hyperplasias, mixed hypertrophy and hyperplasia, or simple hypertrophies. In them the cells are much more closely compacted than the parent cells, and free from chlorophyl. The cells of the hypertrophies are frequently a hundred times the volume of the cells from which they have originated. In the acetic alcohol tumors there has been a great increase in the number of the cells, that is, the development of a true hyperplasia, while in the hypertrophies the component cells appear to be the original cells greatly enlarged.

Smith has called attention to the fact that among the substances enumerated are compounds, namely, ammonia, amins and fatty acids, such as Jacques Loeb[4] has observed to be efficient in starting growth in unfertilized eggs of certain lower forms. Their action, he states, in all probability is purely physical, that is, due to withdrawal of water from neighboring cells by increase of osmotic pressures, whereupon the cells so acted on begin to grow; at least it is possible to obtain the same phenomenon in plants with a great variety of substances, not the product of parasites and not likely to come into contact naturally with the growing tissues. Analogies may be misleading as well as useful in experimental science. They are at any rate helpful if they stimulate us to adopt new points of view.

1. Smith, E. F.: Jour. Cancer Research, 1916, **1**, No. 2; Science, **43**, 871.
2. Smith, E. F.: Crown Gall of Plants: Its Cause and Remedy, Bureau of Plant Industry, Bull. 213, U. S. Dept. Agriculture, 1911.
3. Smith, E. F.: Chemically Induced Crown Galls, Proc. Nat. Acad. Sc., 1917, **3**, 312.
4. Loeb, Jacques: Artificial Parthenogenesis and Fertilization, 1913.

THE AVAILABILITY OF GOAT'S MILK IN PLACE OF COW'S MILK

The investigations of the past few years have given a substantial scientific foundation to the long established belief in the superiority of milk in the feeding of children even beyond the nursing age. Dietary experience and rational empiricism have pointed to the unique value of this food, despite the wealth of propaganda in favor of all sorts of proprietary preparations, especially those compounded from the cheaper cereal grains. Assertions that milk "cannot be tolerated" have frequently been contradicted by the institution of a modification of its quantity or percentage composition. The cases of actual idiosyncrasy to milk can now be detected with some clinical precision, and allowance can be made for them. Never have the unique tissue-building and growth-promoting virtues of milk been more clearly emphasized than at present when, because of the war, provision for the nutrition of many children must be made on an enormous scale not only by individual families but also by communities and even governments. "A quart of milk a day for every child" is likely to be a popular slogan, as it ought to become a current practice.

Along with the admitted need of milk comes the question of maintaining the supply. The growing scarcity of farm hands, the increased cost of feeding milch cattle and the possible shortage of fodders suggest a consideration of any promising economic and physiologically valuable sources of milk other than cattle. Goat's milk has often been proposed;[1] indeed, there are records to suggest that it has a peculiar adaptability to feeding infants and young children in cases in which they must be given artificial food, and neither modified cow's milk nor the proprietary infant foods are fed with success. For several years the New York Agricultural Experiment Station at Geneva conducted an investigation of the value and use of the milch goat, regarding which few dependable data seemed to be available, despite the fact that this animal is widely used in some foreign countries. Extensive analyses over long periods showed that the total solids

1. Sherman, D. H., and Lohnes, H. R.: Practical Study of Goat's Milk in Infant Feeding as Compared to Cow's Milk, THE JOURNAL A. M. A., June 6, 1914, p. 806.

of the milk ranged in general between 11.4 and 11.9 per cent., the fat amounting as a rule to from 3.5 to 3.8 per cent.[2] A chemical study of the goat's milk indicated no essential difference between the constitution of its casein and that of cow's milk. Marked and probably important differences were observed in the salts of the ash as compared with the ash of both cow's milk and human milk.[3]

Enough experience is on record, though much of it is in the nature of personal testimony rather than the conclusion of professional judgment, to make it not improbable that babies tolerate equally well similar amounts of goat's milk and cow's milk when used with the same diluents. We naturally turn, therefore, to the economic aspects of the milch goat problem. An annual yield of from 700 to 900 pounds of milk represents good production for selected goats. On this basis the New York statistics, in which careful account of costs was kept, show cows to be cheaper producers of milk and milk solids than goats, at least under the prevailing condition. If the goat is to compete with our dairy cattle, it must apparently be on some other grounds than those of economy in milk production.

IS THERE A CEREBRAL HEAT CENTER?

The circumstances which result in a nearly constant body temperature as the result of an accurate balance of heat production and heat loss in the organism are, to say the least, highly suggestive of some regulatory process on the part of the central nervous system. Starling[4] has remarked that whether this function of temperature regulation can be specially localized at any part of the central nervous system, so that it would be possible to speak of a heat center in the same way as we speak of a respiratory or vasomotor center, is doubtful.

It has been suggested that the thermogenic center — that responsible for regulating heat production — is situated at a lower level than the thermotaxic system which presides over and determines the balance between heat production and heat loss. Barbour[5] of the Yale University School of Medicine, while admitting that we may not give the "heat centers" too narrow an anatomic limitation, insists that it has long been recognized that the region of the basal ganglions (especially the caudate nucleus of the corpus striatum) plays an important part in the coordination of those processes which affect body temperature. The most important of these processes include (1) those tending to raise body temperature: oxidations in the muscles and other tissues (heat production), and peripheral vasoconstriction (heat sparing); (2) those tending to lower body temperature: inhibition of oxidations (lessened heat production), peripheral vasodilatation, increased respiration, and sweating (heat dissipation). He asserts that the central apparatus which coordinates these processes can, like other nervous mechanisms, be influenced by cold and heat and by drugs. Such agents can never alter the nature of the nervous response; only quantitative changes which we term stimulation and depression can be elicited.

The observations of Barbour[6] that local cooling of the corpus striatum causes increased respiratory exchanges and heat production, while warming has the opposite effect so that heat centrally applied acts as an antipyretic, point to some central localization of heat-regulating factors. Barbour and Prince[7] go so far as to assert that metabolic processes can be diminished by an agent (heat) whose activity, under the conditions of the experiment, is restricted to a limited region of the central nervous system. Heat centrally applied reduces body temperature, therefore, not only by favoring heat dissipation but also by diminishing heat production.

Recently Sachs and Green[8] of the Washington University Medical School, St. Louis, have taken issue with some of these contentions. No temperature changes could be demonstrated by them by stimulating the caudate nucleus faradically. The results of central irrigation by the Barbour method are reported to be variable, and a rise in temperature with cold or a fall with heat application could not be consistently observed. These studies, therefore, it is said, do not confirm the view that there is a cerebral heat center. Perhaps we shall act wisely for the present if we conclude, with Starling, that the facts at our disposal are still too meager to warrant any definite localization of the heat-regulating function in the central nervous system, or any such accurate analysis of the regulating function as has already been suggested.

2. Jordan, W. H., and Smith, G. A.: Goat's Milk for Infant Feeding, Bull. 429, New York Agr. Expt. Sta., February, 1917.
3. Bosworth, A. W., and Van Slyke, L. L.: The Casein and Salts in Goat's Milk, Technical Bull. 46, New York Agr. Expt. Sta., December, 1915.
4. Starling, E. H.: Principles of Human Physiology, Ed. 2, Philadelphia, Lea and Febiger, 1915, p. 1177.
5. Barbour, H. G.: The Pharmacology of Temperature, Brit. Med. Jour., Sept. 13, 1913.
6. Barbour, H. G.: Die Wirkung unmittelbarer Erwärmung und Abkühlung der Wärmezentra auf die Körpertemperatur, Arch. f. exper. Path. u. Pharmakol., 1912, **70**, 1.
7. Barbour, H. G., and Prince, A. L.: The Control of the Respiratory Exchange by Heating and Cooling the Temperature Centers, Jour. Pharmacol. and Exper. Therap., 1914, **6**, 1.
8. Sachs, E., and Green, P. P.: Further Observations on Cerebral Heat Centers, Proceedings of the American Physiological Society, Am. Jour. Physiol., 1917, **42**, 603.

Arsenic in Cremated Bodies.—A recent Japanese work reports the findings on examination of the remains of six cremated persons who had died from arsenical poisoning. Cremation is said to be almost universal in Japan. In three of the six cases the findings were positive; in another they were negative probably because too small a quantity had been used for the tests, only 40 gm. instead of the 100 gm., the amount usually used. No arsenic can be detected chemically in the intestine and excreta when no arsenical medicine or material has been used, if only the minimal amount of material is tested. If more than this is taken for the test, minute quantities of arsenic may be found due to contamination. This extraneous arsenic is usually found as an accumulation on the outside of completely disintegrated bones or fragments, but if well preserved bones are carefully cleansed on the outside this source of error may be eliminated.

Current Comment

"EAT WISELY"

There is no dearth of advice about "what to eat" or "how to cut down the meat bill" or "foods we ought to know" or similar themes in these stirring days of rising costs of living. Some of the instructions are formulated in terms of menus which only a skilled housewife can easily interpret; others are expressed in the increasingly more popular language of calories with its implication of energy and consequent strength; still others abound in the platitudes of the food faker who has his "daily column" to be filled. We have rarely seen a more specific, sane and clearly understandable propaganda than that recently formulated by the Bureau of Home Economics of the New York Association for Improving the Condition of the Poor.[1] In a leaflet aimed to suggest such meals as will be best for growing children, an expert's advice is summarized under this caption: To get the best results, spend money for food as follows:

1. Spend from one fourth to one third of your food money for bread, cereals, macaroni and rice.
2. Buy at least from a third to half a quart of milk a day for each member of the family.
3. Spend as much for vegetables and fruits together as you do for milk. If you use half a quart of milk for each member of the family, this may not always be possible. Then spend as much for vegetables and fruit as a third of a quart of milk a day would amount to.
4. Spend not more for meat and eggs than for vegetables and fruits. Meat and eggs may be decreased with less harm than any of the other foods mentioned. The amount spent for meat may decrease as the amount spent for milk increases.

THE JOURNAL concurs in these recommendations.

PHYSICIANS AND THE SELECTIVE DRAFT

There seems to be considerable confusion regarding the medical profession and the selective draft, and conflicting statements have been made regarding the approximate number of physicians coming within the age limits making them eligible for conscription. A reliable estimate of the number of physicians subject to draft may be reached in the following manner: Statistics show that the average age of students on graduating from medical school is between 25 and 26. Graduates of the last six or seven years only, therefore, would be subject to conscription. The number of those graduating at an age older than 26 during the last six years would be fully, if not more than offset by those who graduated at an age earlier than 26 in years prior to 1912. In the last six years — 1912-1917 inclusive — there were 22,478 graduates. Of these, 806 were women, leaving 21,672 physicians subject to conscription. Of the actual decrease of physicians by death, the larger proportion is from physicians of older age. It is believed that deaths of those who would otherwise be subject to conscription would be fully covered by 1,672, which would leave approximately 20,000 physicians subject to draft.

1. Food for the Family, Publication 120, Bureau of Home Economics, New York Association for Improving the Condition of the Poor. Copies of this publication may be obtained from the New York Association for Improving the Condition of the Poor, 105 East Twenty-Second Street, New York City, at 5 cents a copy.

AN INDICATION OF PROGRESS

The Army Medical Department recently called for bids on a list of medicaments for the United States Army. There were sixty-five items. Of these, sixty-four are either in the U. S. Pharmacopeia, the National Formulary, or have been admitted to New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association. Of the sixty-four all are in "Useful Drugs" except three: Oleum Gossypii Seminis, Pilulae Aloini Compositae and Pilulae Catharticae Compositae, the latter two being needlessly complex, irrational relics of an earlier period in medicine. Similar lists compiled nineteen years ago undoubtedly would have contained double this number of drugs, and would have included proprietary mixtures, more or less secret in character, together with some of the shotgun variety of discarded remedies.

EXPERIMENTAL RAT-BITE FEVER

The question of the causation of rat-bite fever in man was recently discussed in THE JOURNAL.[1] The Japanese investigators, Futaki, Takaki, Taniguchi and Osumi,[2] in contrast with those who have designated a streptothrix as the microbiotic cause of the disease, conclude that the etiologic agent is a protozoon, *Spirochaeta morsus-muris*, which they have detected in the bodies of human patients. It generally disappears on recovery, only to reappear during the relapse of the characteristic paroxysms of fever. Ogata was the first to transmit rat-bite fever to susceptible animals, guinea-pigs, by causing rats to bite them. This has now been confirmed.[3] Only a part of the rats caught at random were capable of transmitting the infection in this way. A rat which did not transmit the disease to one guinea-pig by biting did not confer it on another; conversely, a rat which conveyed the disease by biting one animal would also convey it by biting another. The clinical course and manifestations of the fever in bitten guinea-pigs afford most of the symptoms which are now looked on as characteristic in man. There are swelling and congestion of the bitten parts, enlargement of the subcutaneous lymph nodes, fever, and loss of weight. The progress of the fever appears to be less regular than is the case in human patients. There are acute changes in the suprarenals and the kidneys. Rats and mice can be inoculated from the guinea-pigs so that spirochetes will always appear in their peripheral blood. Thus the former animals are mediums but not victims of the disease, whereas guinea-pigs are both. Inoculations have also been successful in the monkey. As yet the exact conditions under which the disease is transmitted by bites has not been discovered. The specific spirochete has not been detected in the mouths of rats. It must be recalled in evaluating all such assertions as to protozoal infection that pathogenic and nonpathogenic spirochetes have been observed in many animals. The identification of the organism used in these experi-

1. Spirochetes and Rat-Bite Fever, editorial, THE JOURNAL A. M. A., May 19, 1917, p. 1482.
2. The Cause of Rat-Bite Fever, Jour. Exper. Med., 1916, **23**, 249; Spirochaeta Morsus Muris, N. Sp., the Cause of Rat-Bite Fever, Second Paper, Jour. Exper. Med., 1917, **25**, 33.
3. Ishiwara, K.; Ohtawara, T., and Tamura, K.: Experimental Rat-Bite Fever, First Report, Jour. Exper. Med., 1917, **25**, 45.

mental inoculations by bites and other methods must, we are told, be left to further study. It seems to differ from that which Futaki, Takaki, Taniguchi and Osumi[2] found in two patients with rat-bite fever. Like their organism, however, the spirochetes found by Ishiwara, Ohtawara and Tamura disappear from the blood of the affected animals as a result of the injection of salvarsan. This observation is not without significance.

PROTECTING THE INTERESTS OF ABSENT PHYSICIANS

One of the most gratifying developments of the present war situation is the manifest desire on the part of the medical profession as a whole to do everything possible to protect the interests of those members called on for active service. Each issue of THE JOURNAL for weeks past has contained numerous items recording the action of various medical societies on this subject. In most cases, the plan proposed is for those physicians who remain in civil practice to care for the patients of their absent colleagues and to remit a certain amount, generally one third, of the proceeds of such practice to the families of the absent physicians. It is also generally agreed that physicians called out for military service shall have their patients referred back to them so far as possible, on their return to private practice. Variations of this plan are reported from different organizations. The Richmond (Virginia) Academy of Medicine has appointed a committee which will not only oversee the distribution of professional income, but will also assist in rerenting or subletting houses and offices for absent physicians. The Oklahoma County Medical Society has adopted a variation, based on the old communistic principle "from each according to his ability." Each member has been asked to report to the secretary his gross income for 1916. He will then be asked to contribute, in proportion to his earnings, to a fund from which monthly payments will be made to physicians in active service. The information furnished the secretary is to be confidential, and both the president and the secretary, who are to administer this fund, will be under bond. Other variations have been suggested and it is hoped that plans will be worked out in all societies that will be fair to all and capable of simple and easy administration.

THE BASE HOSPITAL AND THE ICE MACHINE

Ice is a peculiar substance with numerous uses and of varying supply. A base hospital in Alaska or Siberia should naturally be able to obtain all the ice which it needs — and there has been a suggestion that some base hospital may be sent to Russia; but there is also a bare possibility that a base hospital may be sent to France or Mesopotamia — wherever that is — or to the Mexican border. This statement is introductory to an incident that seems worth relating. The medical staff of a base hospital in a certain city asked the local Red Cross chapter for recommendation and money to purchase a portable ice-machine. One of the local Red Cross directors, having spent several vacations in France, intimated that the only use the medical staff had for an ice-machine was to utilize its product in the preparation of mint juleps and gin rickeys, not to mention vermouth and absinthe concoctions, of which those less traveled had not even heard. He could see little use for an ice-machine as part of the equipment of a base hospital. Unfortunately no one had informed him of the uses to which ice is put in such institutions. He did not think of the ice bag; he did not know of the uses of the "cold pack" in fever; he did not realize that ice is necessary for the preservation of biologic mediums and in other laboratory and hospital work. Ice is not only a valuable, but practically an essential thing in the hospital. In any event, the base hospital in question secured authorization directly from Washington to purchase its machine. The story is told because of the obvious moral. Medical supplies, medical work, medical actions, are each best governed by medical men.

"KNOCKERS" AND "KICKERS"

Most of the physicians in the training camps for medical officers are happy. Ordered to duty, they severed home ties, closed their offices, made tremendous personal and financial sacrifices and departed to spend three months or even three years in intensive driving, fatiguing studying and training. And yet the attitude of practically every one of them is that of a boy, out camping for a lark, with a certain seriousness of purpose to learn and to improve ever in the mental background. There are a few who kicked when they received their orders, grumbled when they obeyed, fussed when they arrived in camp and "knocked" when they were not "kicking." Kicking in a human being may be an evidence of spirit and then again, as in the army mule, it may be a form of "cussedness." The kickers are not popular in camp, and even when they received the extra privileges they kicked for, no one has envied them the possession. Practically all are beginning to realize that our government has faced a difficult problem in its best possible manner and are satisfied to make the best of what time and human ability have permitted. Gradually army discipline and intercourse with other and better men are bringing the few grumblers into line. Some of the worst "knockers" are gradually becoming the best "boosters."

Syphilis and the Army.—In a recent monograph, G. Thibierge of Paris, in drawing the balance sheet of syphilis, remarks that every soldier contracting syphilis now may be considered as representing at the very least one less soldier and one less mother of a family in the years 1936-1945. He insists on the necessity for hospital treatment for every syphilitic soldier during the contagious phase of syphilitic lesions. The same rule should apply to officers, but may be difficult to enforce in their case. It should be inevitably applied to factory workers, he emphasizes, as the danger of their infecting others is particularly acute. The government has insisted on the necessity for hospitalization for syphilitic soldiers in the contagious stage (decree January, 1916), and Thibierge adds that leave of absence from the hospital should not be given.

Medical Mobilization and the War

Delay in Issuing Commissions

Many physicians who made application for commission in the Medical Reserve Corps have received notice that their request for commission has been granted, but have not received the commission, although more than ample time has elapsed since the notice was received. The delay probably is caused by the fact that, the applications have to go through the regular form of entry in the Adjutant-General's Office after approval by the surgeon-general; the commissions must be made out and are then signed by the Adjutant-General and by the Secretary of War. During each of the past few weeks from 750 to 1,000 men have been recommended for commission in the Medical Reserve Corps alone; in addition similar commissions are being made out to thousands of men in other departments of the service. This necessarily means an overwhelming amount of work for the Adjutant-General's Office, for the Adjutant-General and the Secretary of War. We understand that so far as the Medical Reserve Corps commissions are concerned the Adjutant-General's Office is at present several weeks in arrears; hence the need of patience on the part of those who are looking for their commissions. Of course no one is ordered into active service until he has received his commission.

Free Vaccination for Civilians

As a means of preventing the interstate spread of diseases either by military forces or by the civilian population, the United States Public Health Service has arranged to vaccinate without cost any person who may apply at certain stations designated by this department. Vaccination will be given against any one or all of the following diseases: smallpox, typhoid fever and paratyphoid fever. If desired, a certificate of vaccination will be issued to the person vaccinated. Monthly reports will be sent to headquarters giving the names of those vaccinated, their addresses and the date of vaccination. Application for vaccination should be made to representatives of the United States Public Health Service at the following named points:

Alabama—Fort Morgan, Mobile.
Arizona—Douglas, Naco, Nogales, Tucson.
Arkansas—Little Rock, Newport.
California—Angel Island, Calexico, Eureka, Fort Bragg, Los Angeles, Monterey, Port Hartford, San Diego, San Francisco, San Pedro, Santa Barbara, Tia Juana.
Connecticut—New Haven, New London.
Delaware—Port Penn.
District of Columbia—Washington, Hygienic Laboratory.
Florida—Biscayne Bay, Boca Grande, Cedar Keys, Cumberland Sound, Fernandina, Jacksonville, Key West, Pensacola, Port Inglis, St. Andrew, St. Georges Sound, St. Johns River, St. Joseph, Tampa.
Georgia—Brunswick, Savannah.
Idaho—Eastport.
Illinois—Cairo, Chicago.
Indiana—Evansville.
Iowa—Burlington.
Kentucky—Louisville, Paducah.
Louisiana — Morgan City, New Orleans, Quarantine.
Maine—Bangor, Boothbay Harbor, Calais, Eastport, Houlton, Machias, Portland, Rockland.
Maryland — Baltimore, Cambridge, Crisfield, Solomons.
Massachusetts—Boston, Gallops Island, Gloucester, New Bedford, Provincetown, Vineyard Haven.
Michigan—Bay City, Detroit, Escanaba, Grand Haven, Ludington, Manistee, Marquette, Menominee, Port Huron, Saginaw, Sault Ste. Marie.
Minnesota — Duluth International Falls.
Mississippi — Gulfport, Natchez, Pascagoula, Vicksburg.
Missouri — Kansas City, St. Louis.
Montana—Sweet Grass.
New Jersey — Gloucester City, Perth Amboy.
New Mexico—Fort Stanton.
New York—Albany, Buffalo, New York, Niagara Falls, Ogdensburg, Ellis Island.
North Carolina—Beaufort, Edenton, Elizabeth City, Newbern, Southport, Washington, Wilmington.
North Dakota—Portal.
Ohio—Ashtabula Harbor, Cincinnati, Cleveland, Gallipolis, Sandusky, Toledo.
Oregon — Astoria, Marshfield, Newport, North Bend, Portland.
Pennsylvania — Erie, Philadelphia, Pittsburgh.
Porto Rico—San Juan, Ponce.
Rhode Island—Newport, Providence.
South Carolina — Charleston, Georgetown, Chisolm.
Tennessee—Memphis, Nashville.
Territory of Hawaii—Honolulu.
Texas — Brownsville, Del Rio, Eagle Pass, El Paso, Galveston, Hidalgo, Laredo, Port Arthur.
Vermont—Newport.
Virginia—Alexandria, Fort Monroe, Irvington, Newport News, Norfolk, Richmond.
Washington—Anacortes, Bellingham, Blaine, Everett, Hoquiam, Marcus, Oroville, Port Angeles, Port Townsend, Seattle, Southbend, Sumas, Tacoma.
Wisconsin — Green Bay, La Crosse, Manitowoc, Milwaukee, Sheboygan, Superior.
Alaska—Cordova, Juneau, Ketchikan, Seward, Valdez.

A Sanitary Corps for the Army

The Secretary of War has approved the creation of a Sanitary Corps under the Medical Corps of the Army which will include experts in sanitation, bacteriology, sanitary engineering and men skilled in supply, transportation and storage in connection with medical department work. This law will make it possible for the Medical Corps to make use of trained men not graduates in medicine. The total number of officers in the corps may be approximately equal to but not exceeding one officer for every 1,000 of the total strength of military forces.

Identification Tag for Personnel of the Navy

Officers and enlisted men in the United States Navy will hereafter wear a metal identification tag which will give the wearer's name and date of his birth and enlistment, and in the case of an officer, his rank and date of his appointment, on one side, and on the reverse side, an etching of the fingerprint of the right index finger. Officers of the Navy regard this as the best system of identification known. The tag will be worn suspended from the neck by a wire encased in a cotton sleeve.

War Hospital Construction Fund

The following statement has been issued under the authorization of the Navy Department:

President Wilson has sent to Congress the recommendation of the secretary of the navy for an appropriation of $2,200,000 for emergency hospital construction at points not now provided with hospitals or where hospital facilities are not suitable or sufficient for the needs of the navy.

Surgeon-General Braisted, in urging this appropriation, pointed out that the Medical Bureau's original estimate of $3,200,000 was reduced to $1,000,000 in the urgent deficiency act, and that the additional amount is required to meet pressing needs. He said:

"Emergency hospital construction, now under way and approaching completion, at Portsmouth, N. H.; Newport, Philadelphia, Norfolk, Charleston, S. C.; Pensacola, New Orleans, and Great Lakes will cost nearly $1,000,000 without equipment, and will therefore exhaust the present appropriation.

"Plans are being rapidly completed for temporary emergency hospital buildings at New York, Annapolis; Jamestown, Va.; Quantico, Va.; Key West, Great Lakes, Mare Island, and Puget Sound, which will cost about $1,800,000. In addition to those mentioned, other hospital buildings are necessary at Portsmouth, N. H.; Newport, and Norfolk, which will cost several hundred thousand dollars more.

"All the buildings mentioned as under way and contemplated are of an emergency type of construction and of a temporary character, as required by the terms of the act making provision therefor. The contracts generally require completion in sixty days or less."

Fracture as a Cause for Rejection

Dr. F. A. Barnes of Montana asks whether a fracture of the femur or tibia which has to all intents and purposes completely recovered in the usual time, without deformity, is a cause for rejection.

According to "Rules for the Examination of Recruits": "Old, ununited fractures, fractures with shortening or callous formation sufficient to interfere with function, old dislocations, unreduced or partially reduced, complete or partial ankylosis of a joint, and relaxed articular ligaments permitting of frequent voluntary or involuntary displacement are causes for rejection."

"Excessive curvature of a long bone, and extensive, deep, or adherent scars interfering with motion are causes for rejection."

Rigidity of Examination in Various Branches of the Service

A physician inquires whether persons are accepted for one branch of the service after rejection in some other branch, and if so, which is the least rigid examination?

In the army all men are examined according to a definite routine examination which is practically the same for all branches of the service, varying only in questions of weight and height for the different branches of the service, and in special vision tests for some branches. For infantry, coast

artillery and engineers, the applicant must be not less than 5 feet, 4 inches in height and weigh not more than 190 pounds; for cavalry, he must be not less than 5 feet, 4 inches and not more than 5 feet, 10 inches, and weight not more than 165 pounds; for field artillery, the applicant must be not less than 5 feet, 4 inches and not more than 6 feet in height, and weigh not more than 190 pounds. A variation not exceeding a fraction of an inch in height for cavalry and field artillery is permissible if the applicant is in good health and is in other respects desirable as a recruit.

Official Publications for Medical Reserve Officers

Lieut. S. G. Schwarz, M. R. C., Humbird, Wis., writes: "Where may I get the Manual for the Medical Department of the United States Army? I wrote to the Superintendent of Documents, Washington, but he said they were not on hand. I find that most of the articles on medical military matters refer quite frequently to this book, and if one cannot secure the reference, he is greatly inconvenienced."

ANSWER.—The following War Department publications will be furnished, without cost to Medical Reserve Officers, by writing the following letter:

(Place Date)

From: First Lieut. John Doe, M. R. C., U. S. Army.

To: The Adjutant General of the Army, Washington, D. C.

Subject: Requests War Department publications.

1. Request that there be forwarded to me at the above address single copies of the following publications for my official use:

Manual of the Medical Department, 1916.
Army Regulations, corrected to April 15, 1917.
Field Service Regulations.
Drill Regulations and Service Manual of Sanitary Troops.
Manual for Courts Martial.
Circular 26 W. D. 1909.
Circular 2 W. D. 1916.
G. O. No. 66 W. D. 1910.
G. O. " 112 W. D. 1911.
G. O. " 23 W. D. 1912.
G. O. " 45 W. D. 1916.

JOHN DOE.

Acne as a Cause for Rejection

A physician of Vintondale, Pa., inquires whether acne vulgaris of the back in a young man, otherwise of good health, would bar him from the Officers Reserve Corps. According to the "Rules for Examination of Recruits" acne is not a cause for rejection unless situated on the face and so pronounced as to amount to positive deformity.

Qualifications for Medical Officers and the Draft

A physician of Colorado asks a series of questions of such nature as to make a reply in THE JOURNAL seem worth while.

1. What is the prospect of doctors under the age of 35 being called to service in the Medical Corps?

ANSWER.—The age limit for the draft is 21 and 31. It has been estimated that about 20,000 physicians are subject to the draft. Of the 10,000,000 persons subject to the draft, about 700,000 names are to be drawn now. Of this number, 500,000 are to be selected. Approximately, therefore, one in twenty of the persons registered will be drafted. Hence, the physician's chance is one to a thousand.

2. If a doctor applies for a commission in the Medical Reserve Corps and is accepted, does he have to serve?

ANSWER.—The physician who accepts a commission in the Medical Reserve Corps in time of war must go where ordered and when ordered.

3. Is it possible for Seventh Day Adventists to get relief from duty, such as examining troops and such other work except caring for the sick, on Saturday?

ANSWER.—Army officers, medical and otherwise, work when ordered to do so.

4. Our denomination is planning to organize a base hospital. If it does, will it be possible for a doctor of that faith to apply for a commission and be placed in said hospital if he should get his commission?

ANSWER.—Yes. Probably.

How to Conserve the Food Supply

The following instructions as to what the private citizen can do toward winning the war through the conservation of food and fuel have been formulated by Mr. Herbert Hoover, United States Food Administrator:

SAVE THE WHEAT.—One wheatless meal a day. Use corn, oatmeal, rye or barley bread and non-wheat breakfast foods. Order bread twenty-four hours in advance so your baker will not bake beyond his needs. Cut the loaf on the table and only as required. Use stale bread for cooking, toast, etc. Eat less cake and pastry.

Our wheat harvest is far below normal. If each person weekly saves one pound of wheat flour that means 150,000,000 more bushels of wheat for the Allies to mix in their bread. This will help them to save DEMOCRACY.

SAVE THE MEAT.—Beef, mutton or pork not more than once daily. Use freely vegetables and fish. At the meat meal serve smaller portions, and stews instead of steaks. Make made-dishes of all left-overs. Do this and there will be meat enough for every one at a reasonable price.

We are today killing the dairy cows and female calves as the result of high price. Therefore, eat less and eat no young meat. If we save an ounce of meat each day per person, we will have additional supply equal to 2,200,000 cattle.

SAVE THE MILK.—The children must have milk. Use every drop. Use buttermilk and sour milk for cooking and making cottage cheese. Use less cream.

SAVE THE FATS.—We are the world's greatest fat wasters. Fat is food. Butter is essential for the growth and health of children. Use butter on the table as usual but not in cooking. Other fats are as good. Reduce use of fried foods. Save daily one-third ounce animal fats. Soap contains fats. Do not waste it. Make your own washing soap at home out of the saved fats.

Use one-third ounce less per day of animal fat and 375,000 tons will be saved yearly.

SAVE THE SUGAR.—Sugar is scarcer. We use today three times as much per person as our Allies. So there may be enough for all at reasonable price use less candy and sweet drinks. Do not stint sugar in putting up fruit and jams. They will save butter.

If everyone in America saves one ounce of sugar daily, it means 1,100,000 tons for the year.

SAVE THE FUEL.—Coal comes from a distance and our railways are overburdened hauling war material. Help relieve them by burning fewer fires. Use wood when you can get it.

USE THE PERISHABLE FOODS.—Fruits and vegetables we have in abundance. As a nation we eat too little green stuffs. Double their use and improve your health. Store potatoes and other roots properly and they will keep. Begin now to can or dry all surplus garden products.

USE LOCAL SUPPLIES.—Patronize your local producer. Distance means money. Buy perishable food from the neighborhood nearest you and thus save transportation.

GENERAL RULES

Buy less, serve smaller portions.
Preach the "Gospel of the Clean Plate."
Don't eat a fourth meal.
Don't limit the plain food of growing children.
Watch out for the wastes in the community.

Full garbage pails in America mean empty dinner pails in America and Europe.

If the more fortunate of our people will avoid waste and eat no more than they need, the high cost of living problem of the less fortunate will be solved.

HERBERT HOOVER, United States Food Administrator.

Safeguarding the Interests of Physicians During Military Service

In addition to those previously reported, a large number of medical organizations have taken steps to look after the material interest of those physicians who are called on by the government for medical services. Among others, the Southern Oregon Medical Association, the Cincinnati Medical Lyceum, the Allen County (Ohio) Medical Society, the Connecticut State Medical Society, the San Francisco County (California) Medical Society, the Harrison County (West Virginia) Medical Society and the Wabasha County (Minnesota) Medical Society have made arrangements by which the practices of physicians called out by the government will be taken care of by members of the society. In most cases, it is provided that one third of the proceeds of such work shall be remitted to the family of the absent physician and that patients, treated by other physicians during his absence, shall be referred back to him on his return. Variations of this plan have been adopted in some instances. The Richmond (Virginia) Academy of Medicine has established a bureau which will rerent houses, apartments and offices and maintain the insurance policies of absent members. In St. Louis, a registration committee has been appointed which will distribute the work of absent physicians among those remaining at home. The Oklahoma County Medical Society has asked each member to report his gross income for 1916. With this as a basis,

each member will be assessed a certain amount each month for the support of families of members in military service.

Have The Journal Sent Direct

Medical officers on active duty in training camps or elsewhere can have THE JOURNAL sent directly to them from this office if they will inform us promptly of each change of address. Address, the Subscription Department.

Orders to Officers of Medical Reserve Corps

ALABAMA

To El Paso, Texas, Provisional Field Hospital Co., Lieut. Octavius M. Spencer, Birmingham.

ARIZONA

To Nogales, Ariz., Capt. Leon Jacobs, Yuma.

ARKANSAS

To report by telegraph to commanding general S. D. for duty and station, Lieut. W. A. Dashiell, Little Rock.

CALIFORNIA

To Presidio, San Francisco, for duty with Ambulance Co. No. 2, Lieuts. Bruno F. Sandow, Oakland, and Lionel D. Prince, San Francisco.

CONNECTICUT

To Camp Wilson, Ft. Sam Houston, Texas, Lieut. M. J. Sheahan, Derby.

To Ft. Benjamin Harrison, Lieut. F. G. Goodridge, Pomfret Center.

DELAWARE

Honorably discharged, Lieut. H. A. Cleaver, Wilmington.

DISTRICT OF COLUMBIA

Honorably discharged, Capt. J. J. Repetti, Washington.

FLORIDA

To Army Medical School, Washington, D. C., Lieut. Herbert L. Bryans, Pensacola.

To Jacksonville, Fla., Capt. G. E. Henson, Jacksonville.

ILLINOIS

To Ft. Benjamin Harrison, Lieut. W. W. Coen, Springfield.

KANSAS

Honorably discharged, Capt. Samuel Murdock, Sabetha.

KENTUCKY

To Ft. Oglethorpe, Lieuts. Morton M. Moss, Bowling Green, and Marvin S. Veal, Daniel Boone.

Par. 100 S. O. 132, June 8, War D., relating to Lieut. Charles K. Berle, Louisville, is revoked.

LOUISIANA

Honorably dishcarged, Lieut. C. L. Gaulden, Elizabeth.

MAINE

Honorably discharged, Lieut. B. Hayden, Livermore Falls.

MARYLAND

To Washington, D. C., Major T. C. Janeway, Baltimore.

MASSACHUSETTS

To Allentown, Pa., Lieut. Albert E. Small, Melrose.

To Army Medical School, Washington, D. C., Lieuts. William A. R. Chapin and Richard A. Rochford, Springfield.

To Washington, D. C., Lieut. Cassell C. Tucker, Boston, and report in person to the commandant Army Medical School for a course of instruction, Lieut. Charles H. Watt, Fall River.

To Report in Person to Commanding General, N. E. for duty, Major Dunlap P. Penhallow, Boston.

To 4th Engrs. N. A., Lieut. Albert A. W. Ghoreyeb, Boston.

MICHIGAN

To Ft. Benjamin Harrison for instruction, Lieut. William J. Du Bois, Grand Rapids.

To home, Capt. Ernest N. Dolman, Detroit.

Honorably discharged, Lieut. C. L. Washburne, Ann Arbor.

MINNESOTA

To Ft. Benjamin Harrison, Capt. Harold L. Lamb, Sauk Center.

To Ft. Riley, Lieut. Jared W. Daniels, St. Peter.

To Washington, Lieut. Arthur T. Henrici, Minneapolis.

Sick leave one month, Lieut. Frank H. Clay, St. Charles.

MISSISSIPPI

To Ft. Oglethorpe for instruction, Lieut. David W. Walley, Richton.

Par. 39, S. O. 130, June 6, 1917, War D., relating to Capt. H. Greenberg, Fayette, is revoked.

MISSOURI

To Ft. Riley, Major H. C. Herrick, St. Louis.

NEW JERSEY

To Ft. Oglethorpe, Capts. Richard Hirsch, Jersey City; E. J. G. Beardsley, Spring Lake Beach; Albert G. Bising, Weekawken and Lieut. Ord L. Sands, Orange.

To Home, Lieut. A. A. Strasser, Arlington.

NEW YORK

To Allentown, Pa., Lieuts. Harry L. Bibby, Joseph W. Gardam and Morton P. Lane, New York City.

To Allentown, Pa., with Ambulance Co. No. 7, Lieuts. Max P. Cowett, Royal A. Schaaf and Rowland P. Stanley, New York City.

To Ft. Benjamin Harrison for instruction, Lieut. Constantine J. MacGuire, New York City.

To the New York Academy of Medicine, New York, N. Y., Capt. Brooks H. Wells, New York City.

To West Point, N. Y., for duty, Capt. William H. Haskin, New York City.

To Report by Telegraph to Commanding General N. E. Dept., Lieuts. Ignatius L. Stein, Long Island; Leoe. G. Weishaar, Mt. Vernon; and Warren Wooden, Rochester.

Honorably discharged, Lieuts. Otto R. Eichel, Albany, and J. F. Ranken, Brooklyn.

OKLAHOMA

To Nogales, Ariz., Base Hospital No. 5, Lieut. Fenton M. Sanger, Oklahoma.

OHIO

To Army Medical School, Washington, D. C., Lieut. Anton B. Spurney, Cleveland.

To Cleveland, Red Cross Ambulance Co. No. 4, Lieut. Frank S. Gibson, Cleveland.

To Ft. Benjamin Harrison, Capt. C. C. Waller, Warren, and Lieut. H. M. Metcalf, Elyria.

Par. 48, S. O. 140, June 18, 1917, War D., relating to Capt. C. T. Hunt, Miamisburg, is revoked.

OREGON

To Ft. Riley, Lieut. Ernest D. Everett, Lakeview.

PENNSYLVANIA

To Ft. Benjamin Harrison, Lieuts. James M. McKibbin, Buck Valley, and Lauren C. Thomas, Latrobe.

To Ft. Oglethorpe, Lieuts. Josiah T. Bunting and F. S. Ferris, Philadelphia.

To New York, N. Y., course of instruction in laboratory work, Lieut. James H. Austin, Ardmore.

To New York, N. Y., and Report in Person to the Commanding General, Eastern Department, for further orders, Lieut. Paul C. Wittman, Philadelphia.

To Plattsburg Barracks, N. Y., Lieuts. Robert H. Bolling, Philadelphia, and C. W. Lincoln, Wayne.

To Washington, D. C., and report in person to the commandant army medical school for a course of instruction, Lieut. Henry E. Keely, Philadelphia.

To Washington to active duty, Lieut. Cyril F. Lauer, Pittsburgh.

To 5th Regt. of Engrs., Lieuts. Henry C. Flood and Paul H. Walter, Pittsburgh.

Assigned with reserve engineers, Lieut. Samuel Brister, Philadelphia.

Honorably discharged, Lieuts. J. L. Herman, Gordonville; Charles A. O'Reilly, G. G. Ross and J. E. Talley, Philadelphia.

SOUTH CAROLINA

To Gettysburg, Pa., Lieut. Robert H. Crawford, Rock Hill.

To Ft. Oglethorpe, Major Francis L. Parker, Charleston.

TEXAS

To Ft. Oglethorpe, Lieut. James S. Reid, Hearne.

To Washington, D. C., Army Medical School, for a course of instruction, Lieut. Frederick S. Wright, Brownsville.

VIRGINIA

To Boston, Lieut. John W. H. Pollard, Lexington.

To Ft. Oglethorpe, Capt. Thomas C. Firebaugh, Harrisonburg.

WASHINGTON

To Ft. Worden, Wash., Lieut. Richard C. Hill, Irondale.

To report by telegraph to Commanding General, Western Dept. for duty and station, Capt. Wm. E. Joiner, Seattle.

WEST VIRGINIA

To Ft. Oglethorpe, Lieut. Calvin E. Clay, Martinsburg.

Orders to Officers of the Medical Corps

Major M. A. Reasoner, M. C., to station at Chicago.

Capt. M. C. Stayer, M. C., to station at San Francisco.

Capt. J. P. Fletcher, M. C., to station at Louisville.

Major A. M. Whaley, M. C., as surgeon at Ft. Myer, Va.

Capt. E. G. Huber, M. C., to station at Fort Snelling.

Officers of Medical Corps to Washington for examination for promotion: Lieut. Cols. Carl R. Darnall and Champe C. McCulloch, Jr.; Majors William H. Moncrief and Allie W. Williams; Capts. Raymond C. Bull and Douglas W. McEnery.

Capt. Henry P. Carter, M. C., from further duty at Ancon, C. Z., and at the earliest practicable date to Petersburg, Va., for duty, relieving Major John R. Bosley, M. C., who will return to proper station.

Officers of Medical Corps from duty in Hawaii and to United States and report in person to comanding general, Western Dept., for further orders: Lieut. Col. Powell C. Fauntleroy, Major Eugene H. Hartnett, Capt. Lauren S. Eckels and Capt. Raymond W. Bliss.

Major Robert C. Loving, M. C., to station at San Antonio, Texas.

Officers of Medical Corps from duty in Philippine Dept. to United States on first available transport and report in person to commanding general, Western Dept., for further orders; Major John L. Shepard, 1st Lieuts. Charles L. Gandy and William W. Vaughan.

Major Edwin W. Rich, M. C., to Camp Stotsenburg, Pampanga, for duty, relieving Major Paul C. Hutton, M. C., who goes to Manila for duty.

Major Henry H. Rutherford, M. C., to Manila for duty as assistant to department surgeon.

Capt. William T. Cade, Jr., M. C., to Atlanta, Ga., as camp sanitary officer during construction of cantonments.

Capt. William K. Bartlett, M. C., to Fort Des Moines, Iowa, for duty.

Capt. William R. Dear, M. C., to duty as attending surgeon, Philippine Department, with station in Manila.

Capt. Fletcher O. McFarland, M. C., to Manila, Cuartel de Espania, for duty, relieving Lieut. Col. James S. Wilson, M.C., who will proceed to Fort William McKinley, Rizal, for duty.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

New Operating Room Provided.—The city commissioners of Mobile have appropriated $10,000 for the erection of a modern operating room at the City Hospital, for the use of the clinical staff of the University of Alabama School of Medicine.

Personal.—Dr. Seale Harris, Birmingham, who was operated on for appendicitis in New York, is reported to be convalescent.——Dr. Benjamin B. McCleskey, Bessemer, has been appointed sanitary inspector and placed in charge of the local health office.

ILLINOIS

Physicians' Association Incorporated.—Papers of incorporation were issued at Springfield, June 22, for the Illinois National Physicians' Home Association.

Sanatorium for La Salle County.—Plans for the proposed La Salle County Tuberculosis Sanatorium have been submitted to the supervisors. The institution will cost $65,000 and will accommodate about fifty patients.

State to Combat Tuberculosis.—Dr. George Thomas Palmer, Springfield, has been appointed assistant director of the state department of health and is in charge of the defense of Illinois troops from tuberculosis, which is said to have been so prevalent in the European armies.

War on Mosquitoes.—The Western Suburbs Anti-Mosquito Association, which includes the suburbs of Maywood, Forest Park, River Forest, Melrose Park, Bellewood, Oak Park, the forest preserves and Aurora, will endeavor to eliminate the mosquito from the western suburbs of Chicago, by spraying crude oil on the surface of all ponds and swampy places.

Appellate Court Rules on Cook County Hospital Civil Service Examinations.—As is generally known, appointment to the attending staff of the Cook County Hospital is made from an eligible list obtained as the result of a competitive examination conducted by the Cook County Civil Service Commission. On Dec. 7, 1911, an examination was held and those who passed received notice to that effect. Before the eligible list was actually prepared or posted, however, numerous complaints were made of unfairness in the methods of calling and holding the examination, and in the marking of the papers. The civil service commissioners instituted an investigation and appointed a committee of physicians of Cook County to advise in regard to the question as to the fairness and justice of the markings based on experience. The committee reported that it did not think the civil service commission would be justified in accepting the markings.

The commission at a meeting held Sept. 3, 1912, passed a motion stating that it found: (1) that the examination was divided in such a manner that the applicants who were entitled to take more than one of the thirteen separate tests could not do so because these tests were held simultaneously by the examiners; (2) that some of the tests were held for alleged places which do not and never did exist, and (3) that a special committee of physicians appointed by this commission to investigate the experience markings in this examination had found after careful investigation that the standard of experience prescribed was wantonly departed from in numerous cases to the advantage of certain applicants, and that the committee had reported that they did not think the civil service commission would be justified in accepting the original markings. The commission unanimously ordered that the report of the examiners be rejected and set aside, and that new applications be received.

Among those who passed were several who contended that the commission had no power to enter this order, and that in doing so they were improperly influenced; that on being notified they became entitled to have their names placed on the eligible list and were entitled to appointment. Suit was brought in the name of Dr. Aime P. Heineck et al. to compel the civil service commission to reverse its action. April 24, 1915, a writ of mandamus was issued against the commission in the circuit court to compel them to reverse their action canceling the examination held Dec. 7, 1911, and to restore the eligible list which resulted from that examination. Last week presiding Justice Goodwin of the appellate court rendered an opinion reversing the decision of the circuit court, stating that it was within the power of the commission to set aside the examination and that there is no evidence to sustain the contention that the commission was improperly influenced or acted fraudulently or dishonestly. "The power of the commissioners" said Justice Goodwin, "must, of course, be determined by the terms of the statute, and while commissioners are authorized to appoint examiners, the statute expressly directs that the commissioners shall control all the examinations, and later provides that they shall investigate the action of the examiners. The purpose of these provisions is clear. The provisions of the statute were intended to create conditions under which appointment to positions in the county service should be on the basis of merit. To this end a commission is created, charged with the duty of faithfully carrying out the provisions of the statute, and in this work it is empowered to secure the assistance of examiners, but in that connection the statute makes it very plain that it shall retain the duty of controlling the examinations and investigating the action of the examiners whom they appoint. To say that it has these powers and duties and no power to set aside an examination, which in its opinion had been irregularly or improperly conducted, would be a distinct contradiction in terms. The legislators might provide that the action of the examiners should not be subject to control or investigation, but they have not chosen to do so. Hence it necessarily follows that when an investigation of the action of the examiners discloses facts which, in the opinion of the commissioners, convince them that an examination has been unfairly or improperly conducted, it is not only within their power, but it is their duty, under the statute, to set that examination aside. It may be argued that such a power invites abuse, but to this it may be answered that the power seems clearly and unmistakably given by the statute, and, moreover, it would seem that it is impossible to create a system for the appointment of public officials and employees, whose fair operation will not depend to some extent upon the fidelity of the commissioners appointed to supervise its workings."

Chicago

Physicians' Club Election.—At a recent meeting of the board of directors of the Physicians' Club of Chicago, Dr. Arthur M. Corwin was elected president, Dr. Henry W. Cheney, treasurer, and Dr. William D. Napheys, secretary. The other directors are Drs. John Weatherson, Daniel N. Eisendrath and A. Augustus O'Neill.

Personal.—Dr. Henry Linderoth was injured in a collision between two street cars, July 7.——Dr. Charles F. Stotz has been elected president and Dr. Moses Sahud, secretary of the Northwest Branch of the Chicago Medical Society.——Prof. R. G. Hoskins of the Northwestern University Medical School has been appointed editor of *Endocrinology*, the bulletin of the Association for the Study of the Internal Secretions.

Care for Soldiers and Sailors, and their Dependent Families.—The following committee has been appointed to arrange for the care of soldiers and sailors of the United States and their dependent families: Drs. E. Wyllys Andrews, Arthur Dean Bevan, Frank Billings, Joseph P. Cobb, Arthur M. Corwin, John M. Dodson, Allen B. Kanavel, Lewis L. McArthur, Albert J. Ochsner, A. Augustus O'Neill (chairman), William E. Quine, Thomas E. Roberts, John A. Robison, George H. Simmons, Homan Spalding, Samuel C. Stanton, Daniel A. K. Steele and Clarence L. Wheaton (secretary).

Colony for Dementia Praecox Needed.—Dr. William J. Hickson, in his preliminary report regarding the new venture of examining for mental troubles, individuals who have been brought repeatedly before the court of domestic relations, morals court, boys court and juvenile court, states that 50 per cent. of those brought into these courts have been punished more than once, and frequently several times for the same offense, and that practically all of them are feebleminded or suffering from dementia praecox. He suggests that a colony for these patients be established where they can be cared for in winter and in summer; that they be scattered in groups under proper restrictions to build roads for the state and take part in other public improvements.

INDIANA

Sanitary Troops Mustered In.—Ambulance Company No. 1 and Field Hospital Company No. 1, Ind. N. G., at Fort Ben-

jamin Harrison, were mustered into the federal service, June 22.

Personal.—Dr. Eugene B. Mumford has been elected director and Dr. Homer W. Cox, physician in charge of the Summer Mission for Sick Children at Fairview Settlement, near Indianapolis.——Dr. J. Rilus Eastman, Indianapolis, narrated his experiences in Vienna at the weekly luncheon of the Indiana University Association of Indianapolis, June 25.

Favors Continuous Session.—The Indiana State Board of Medicine, Registration and Examination has voted in favor of admitting to its examinations, during the present war emergency, graduates of medical schools which have continuous sessions for junior and senior classes. This method shortens the time required for obtaining the degrees by about eight months, since the student continues work through the summer. There is no reduction in the number of hours devoted to medical study.

IOWA

Floods Delay Dedication.—On account of the floods, the program for the opening of the Graham Hospital, Centerville, could not be carried out, June 6, and the dedicatory exercises were, therefore, postponed until June 12.

Hospital Changes Owners.—Drs. Otto O. Svebakken and Charles W. Rominger have sold their private hospital at Waukon to the Nurses' Medical Benevolent Association. The new management will assume charge about September 1.

Woodbury County's Record of Service.—Seventeen physicians of Woodbury County are in the government service or waiting to be called. Eight of these are in the National Guard and nine in the Medical Officers Reserve Corps.

New Health Regulations.—New rules and regulations of the Iowa State Board of Health have been printed and mailed to all mayors, city and township clerks, health officers and county auditors of the state. Any physician in Iowa who will make request to the state board of health that a copy be sent to him, will receive a copy of the new rules and regulations.

Des Moines Valley Physicians Meet.—The forty-sixth annual meeting of the Des Moines Valley Medical Association was held recently in Ottumwa and the following officers were elected: president, Dr. Charles H. Magee, Burlington; vice presidents, Drs. Laris P. Torrence, Blakesburg, and M. F. Moore, Ottumwa, and secretary-treasurer, Dr. Elias B. Howell, Ottumwa (reelected).

MISSOURI

Club Election.—At the annual meeting of the Medical Women's Club of Kansas City the following officers were elected: Dr. Dora E. Bowman, president; Drs. Alberta Moffett Green and Luella Brommel, vice presidents, and Dr. Adeline Goodrich Soule, secretary, and Dr. Avis E. Smith, treasurer.

Personal.—Dr. Godfrey O. Cuppaidge, Moberly, has been elected president of the state board of health, succeeding Dr. Francis H. Matthews, Liberty, resigned.——Dr. John F. Binnie, Kansas City, has resigned from the Municipal Hospital and health board, and has been succeeded by Dr. Leslie Miller.——Dr. J. L. Eaton has been elected superintendent of State Hospital No. 4, Nevada, and Dr. Frank L. Long, Farmington, was reelected, and Dr. Prentiss S. Tate, Morley, assistant physician to the institution.——Dr. Marion O. Biggs has been reelected superintendent of the Fulton State Hospital.——Dr. James C. Welch, Salem, has been appointed physician to the state penitentiary.——Dr. Arthur C. F. Brown, Kansas City, was severely beaten and robbed by highwaymen, recently.——Dr. William J. Bell, St. Joseph, has returned from the western front in France.

St. Louis

Personal.—Dr. Frederick Hagler, who has been stationed at Grudens, Germany, for the last year, has returned to the United States.——Dr. George Wade Wilson has been appointed chief surgeon to the police department, succeeding Dr. Harry M. Moore.

NEW YORK

To Rebuild Sanitarium.—The building of St. Gabriel Sanitarium, Saranac Lake, which was destroyed by fire last January, is to be replaced by a new structure. Work will be begun on the new structure next month. The estimated cost of the new building is between $750,000 and $1,000,000.

New York City

Diet Kitchen Needs Funds.—The New York Diet Kitchen Association has issued an appeal for $10,000 with which to continue its work. The association is now caring for 2,500 babies in its eight health stations.

City Commends Straus Milk Stations.—A resolution, recently adopted by the board of aldermen, commends Nathan Straus for his establishment of milk stations in this city, which it is estimated have saved the lives of 250,000 babies.

Boat Ambulance Launched.—St. John's Guild has launched a new 38 foot gasoline ambulance, the gift of Isaac N. Seligman. The launch will be used to transfer patients between the Floating and Seaside hospitals maintained by the guild.

Institution for Blind Acquires Site.—The New York Institute for the Education of the Blind has acquired a new 18 acre site, fronting on Pelham Parkway, Williamsbridge Avenue, Astor and Bronxwood avenues. It is estimated that the cost of the group of buildings to be erected on this site will approximate $1,000,000.

New Bay Ridge Hospital.—The contract for the new Bay Ridge Hospital to be erected at Seventh Avenue and Ninety-Second Street, Brooklyn, has been let. Only the main wing of the hospital is to be built at present, which will cost $135,000. This structure will provide for sixty beds, including two free wards, and several private rooms. When completed several other buildings will be grouped about this wing.

Women Give Hospital Unit.—The New York Infirmary for Women and Children, backed by the National American Woman Suffrage Association, has offered a mobile hospital unit to the government. Dr. Caroline S. Finley is director of this unit. The organization committee has among its members Dr. I. von Sholly, Dr. Mary Lee Edward and Dr. Alice Gregory. The unit starts with a nucleus of twelve doctors, twenty-one nurses, and three orderlies.

Last Year's Poliomyelitis Epidemic.—Detailed information regarding the poliomyelitis epidemic in this city in 1916 has been published by the department of health and constitutes No. 16 of the *Monograph* series. It contains 391 pages and is divided into thirteen chapters, dealing respectively with the history, etiology, epidemiology, insects as carriers of the disease, poliomyelitis in New York in 1916, pathology, symptomatology, diagnosis and differential diagnosis, prognosis, record of treatment employed, discussion of treatment and prophylaxis. In an appendix are collected rules and regulations, reproductions of placards, leaflets, press bulletins, statistic tables, etc. Owing to the expense of publication the *Monograph* will cost $1.50. Copies may be obtained through medical book dealers or from the Department of Health, 149 Center Street.

OHIO

Personal.—Dr. Clement N. Clark, Canton, fell while inspecting a new building, June 25, and suffered severe contusions.——Dr. Leander F. Cain, Caldwell, charged with illegal practice, was found not guilty, June 23.——Dr. Henry Baldwin has been reelected superintendent of the District Tuberculosis Hospital, Springfield, and Dr. Robert H. Grube, Xenia, has been choosen as president of the board of trustees.

Promotions.—The following promotions have been made at the School of Medicine of Western Reserve University: Drs. Paul J. Hanzlik, to be assistant professor of pharmacology; Cyrus Harwell Fiske, to be assistant professor of biochemistry; Roy Wesley Scott, to be associate in physiology; Julius Moses Rogoff, to be senior instructor in experimental medicine for two years; Roy Bartlett Metz, to be associate in ophthalmology; Joseph Edgar McClelland, to be instructor in pediatrics; Carlos Eugene Pitkin, to be instructor in diseases of the nose, ear and throat; Chester Dale Christie, to be instructor in medicine; Marion Arthur Blankenhorn, to be instructor in medicine.

Cincinnati

Merger of City Boards Proposed.—Merger of the health and public welfare boards of the departments of the city, with one head having direct supervision, was advocated recently before the charter commission by Dr. Otto P. Geier, formerly superintendent of charities and corrections.

Personal.—Dr. Wade W. Oliver, assistant professor of bacteriology in the University of Cincinnati, has been appointed professor of bacteriology in the College of Medicine of Long Island College Hospital, Brooklyn.——Dr. Joseph Ransohoff has resigned on account of the age limit fixed by the War Department as director of the Cincinnati District

Base Hospital Unit and has been succeeded by Dr. William Gillespie.——Dr. John M. Adams has been reelected department medical director of the Grand Army of the Republic.——The degree of Master of Science has been conferred on Dr. John M. Withrow by the Ohio Wesleyan University, Delaware.——Dr. Charles S. Dreyer has been commissioned lieutenant, M. C., Ohio N. G., and assigned to the Third Ambulance Company.

OREGON

New Examiners Appointed.—D. D. Young, McMinnville, has been appointed by the government a member of the state medical examining board as a representative of the osteopathic school.——Ross A. Farr, Astoria, has been reelected a member of the Oregon State Board of Pharmacists.

South State Physicians Meet.—At the annual meeting of the Southern Oregon Medical Association, held in Grant's Pass, May 8, the following officers were elected: president, Dr. William W. P. Holt, Eagle Point; vice president, Dr. George C. Knott, Glendale, and secretary-treasurer, Dr. Alvane C. Seely, Roseburg (reelected). Medford was selected as the next place of meeting.

Eugenic Board to Organize.—Dr. R. E. Lee Steiner, Salem, has sent out notices calling together for organization the new state board of eugenics, provided for in the bill passed by the last legislature and composed of the members of the state board of health, the superintendents of the two state hospitals, the warden of the state penitentiary and the superintendent of the state school for feebleminded.

Personal.—Capt. George E. Houck, Roseburg, M. C., Ore. N. G., has been appointed chief surgeon of the medical department with rank of major.——Dr. J. Ray Pemberton, Salem, has been appointed physician to the state prison, in place of Dr. W. Carlton Smith, called in the national service.——Dr. Jesse P. Truax, mayor of Grant's Pass, suffered a fracture of the clavicle, caused by the overturning of his automobile near Merlin recently.——Capt. Waldo L. Cheshire, M. C., Ore. N. G., Eugene, has been promoted to major and detailed as chief surgeon in the Oregon Artillery.

PENNSYLVANIA

Laboratory Transferred.—The new William H. Singer Memorial Laboratory, Pittsburgh, was formally opened and presented to the Allegheny General Hospital by G. Harton Singer, May 23. The laboratory, which has cost over $250,000, is the gift of Mrs. Singer, her son and her two daughters.

Personal.—Dr. John B. Carrell, Hatboro, has been reappointed consulting physician to the State Hospital for the Insane at Norristown.——Dr. Warren H. Butz, Allentown, has been appointed physician to the Traylor Shipbuilding Corporation, Cornwells, where he has a camp of 3,000 men, and where the corporation is building a hospital for the use of its employees.

Tuberculosis Society Merged with Charities Board.—At the annual meeting of the Bethlehems Branch of the Pennsylvania Society for the Prevention of Tuberculosis, June 11, it was decided to ratify the question of placing the work of the society in the hands of the Associated Charities Organization of the Bethlehems. Dr. William P. Walker was reelected president and Dr. Walter D. Chase, first vice president of the organization.

Medical Society Holds Patriotic Meeting.—At the annual outing meeting of the Allegheny County Medical Society, at the Pittsburgh Field Club, there was a patriotic demonstration. Addresses were made by Col. T. H. Goodwin, of the English Commission; Drs. Franklin H. Martin, Chicago; Charles A. E. Codman, president of the state association. Samuel G. Dixon, president-elect, and Henry D. Jump, president of the Philadelphia County Medical Society.

Personal.—Dr. Henry H. McIntire has been promoted from assistant medical examiner for the Baltimore and Ohio system at Connellsville to medical examiner for the company at St. Louis.——Dr. Lawson has been appointed assistant medical examiner for the Baltimore and Ohio system at Connellsville.——Dr. George W. Gault, Marysville, has been appointed coroner of Perry County for a second term.——Dr. Bradford A. Booth, chief medical inspector in the Bureau of Infectious Diseases, Pittsburgh, retired, June 15, after twenty-nine years spent in the city service.——Dr. Clara S. Keiser has been appointed superintendent of the Neversink Mountain Tuberculosis Sanatorium, Reading, succeeding Dr. Addison M. Rothrock, called into the United States service.——The University of Pittsburgh has conferred the degree of LL.D. on Dr. Thomas Alexander Forsythe, founder of the Forsythe Dental Infirmary, Boston.

National Guard Changes.—Commissions have been issued for the following medical officers: Major Eugene Swayne, Philadelphia, assigned Field Hospital No. 3; Major Daniel E. Sable, Pittsburgh, assigned First Field Artillery; Lieut. Robert B. Mackey, Lackawanna, assigned Thirteenth Infantry; Lieut. Alvin E. Bulger, Pittsburgh, assigned Eighteenth Infantry; Lieut. Theodore A. Little, Erie, assigned Sixteenth Infantry; Lieut. Harry Z. Hibshman, Philadelphia, assigned Field Hospital No. 3, and Lieut. Joseph J. Furner, Pittsburgh, assigned Ambulance Company No. 1.——The following appointments are announced in the medical section of the Pennsylvania National Guard Reserve: Majors George M. Coates and Ross H. Skillern. The resignation of the following medical officers has been accepted: Lieuts. William C. Le Compte, Bristol; Thomas M. Toomey, Francis F. Borzell, Philadelphia; Meade Wiant, Pittsburgh; Charles W. Shirey, Pittsburgh, and Swithin Chandler.——Lieut. Charles G. Steinmetz, Jr., has been transferred from the Third to the First Infantry.——Ambulance Company No. 3 was mustered into the service at Lancaster, May 31.

Philadelphia

White Collection Given to University.—Mrs. J. William White, widow of the late distinguished surgeon, has presented to the University Museum all the archeological and ethnological collections of her husband.

Yellow Fever Death.—Yellow fever caused the death of Jose Mariato, a Spanish sailor on the Danish steamship *Bryssel*, which has been held at Reedy Island Quarantine Station since July 1. This vessel was bound to Philadelphia from Antilla, Cuba, with a cargo of raw sugar. Mariato died yesterday afternoon, after he had been taken to the Government Hospital on Reedy Island. It is thought that he contracted the disease in the interior and not at the port of sailing. It is not believed that any of the other men on the ship are suffering from the disease, however, the authorities held the ship in quarantine until July 8.

Personal.—Dr. Peter F. Moylan has been made a Knight of St. Gregory by Pope Benedict XV.——Dr. Alfred Gordon delivered the commencement address at the College of Physicians and Surgeons, Boston, on "Race Betterment, Based Upon Principles of Physical and Mental Prophylaxy."——Dr. Alonzo E. Taylor, since 1911 connected with the medical laboratory of the University of Pennsylvania, has been appointed by Secretary of Commerce Redfield as a member of the advisory board of the Export Control Council.——Dr. Ernest LaPlace was selected as chief orator for the municipal Independence Day celebration at Independence Hall.

CANADA

Hospital Opened.—On July 5, Right Honorable Walter Long formally opened the new extension of the Ontario Military Hospital, Orpington, Kent, England. The capacity of that hospital is now doubled, with accommodation for 2,800 patients.

Compulsory Military Training Approved.—The board of governors of the University of Manitoba, Winnipeg, have approved compulsory military training for all male students. It is also proposed not to admit any unmarried male of 20 years to attend lectures or take examinations, unless he furnishes satisfactory reasons why he has not enlisted.

Workmen's Compensation, Ontario.—The Workmen's Compensation Board of Ontario has sent to all practitioners in the province memoranda as to the amendments made in the act at the recent session of the Ontario Legislature. The board, after July 1, 1917, will pay all professional charges, nursing and hospital when necessary, of a reasonable nature, for a period not exceeding one month from the disability. The doctors' accounts are to be rendered direct to the board, and it is expected that the charges will be reasonable, not exceeding what would ordinarily be charged to the workman if he himself were paying the account.

Personal.—Capt. Allen E. Thompson, M. C., C. A. M. C., Coaticook, Que., who has been home on leave of absence from France, has returned. On the first day of the big push on the Somme last year, while attending wounded under fire, he was awarded the Military Cross.——Dr. Marchant B. Whyte, superintendent of the Isolation Hospital, Toronto, has been appointed director of medical services in connection with the board of health of that city. His responsibility now

extends over the Isolation Hospital, the schoolchildren and the various clinics maintained by the public health department.——Lieut.-Col. George R. Philip, Toronto, recently returned from overseas, has been appointed A. D. M. S. of the Petawawa Camp, near Ottawa, Ont.——The transfer of Capt. J. D. H. Barnett, A. M. C., from casualties, and his appointment as medical officer of the 248th Battalion, have been approved.

GENERAL

Anesthetists Offer Services.—The American Association of Anesthetists, at its fifth annual meeting, adopted resolutions offering its services and moral support to the government in the interest of efficient anesthesia in the army and navy, especially in the instruction of those who are to have charge of the administration of anesthesia in the service.

Public Health Reserve.—Resolutions appropriating $300,000 for the creation of an officers reserve corps in the United States Public Health Service, and providing for the pay of officers of that service detailed to war duty with the army, navy and coast guard were passed, June 18, by the Senate, and sent to the House of Representatives.

Bequests and Donations.—The following bequests and donations have been recently announced:

Lakeside Hospital, Cleveland, $200,000 by the will of Washington S. Tyler, Cleveland, one-half of which is to be used for constructions and the income from the other half for the maintenance of the maternity to be conducted in connection with the hospital.

Washington University, St. Louis, $1,000,000, donated by the General Educational Board, to finance research in surgery, medicine and pediatrics.

St. Louis Society for the Relief and Prevention of Tuberculosis, between $9,000 and $10,000, the proceeds of a baseball game June 8.

St. Lukes Hospital, New York City, a bequest of $7,500 to endow a bed in perpetuity, by the will of Anson Wales Hard.

Lake View Hospital, Chicago, Childrens Home, Lafayette, Indiana, and Home Hospital, Lafayette, Indiana, equal parts of a bequest of $150,000, by the will of Mrs. Nicholas Box, Lafayette, Indiana, on the death of her husband.

Lakeside Hospital, Cleveland, $1,000,000; St. Vincent's Charity Hospital, Cleveland, $200,000; Cornell University Medical School, New York City, for its endowment fund, $500,000; by the will of Col. Hazard Payne.

Episcopal Hospital, Philadelphia, $5,000, by the will of Mrs. Sarah M. Lewis.

Annals of Medical History.—The *Annals of Medical History* is a new venture in journalism. The first number contains the following articles:

"The Scientific Position of Girolamo Fracas Toro 1478?-1553 with Especial Reference to the Source, Character and Influence of His Theory of Infection," by Charles and Dorothea Singer.

"The Greek Cult of the Dead and the Chthonian Deities in Ancient Medicine," Fielding H. Garrison.

"The Three Characters of a Physician," Enricus Gordus.

"Voltaire's Relation to Medicine," Pearce Bailey.

"An Unpublished Bronze Ecorché," Edward Streeter.

"Burke and Hare and the Psychology of Murder," Charles W. Burr.

"Hebrew Prayers for the Sick," C. D. Spivak.

"Laryngology and Otology in Colonial Times," Stanton A. Friedberg.

In addition there are editorials and book reviews. The book is artistically printed in large type on pages 12½ by 8½, and contains numerous illustrations, most of which are reproductions from old books. The *Annals* is to be issued quarterly and is edited by Dr. Francis R. Packard of Philadelphia, the author of "History of Medicine in U. S." The staff of Associate Editors includes some of the leaders in the study of medical history in America, as well as Sir William Osler of England. It is published by Paul B. Hoeber, New York.

FOREIGN

Eighth Pan-American Congress.—It is announced that the eighth Pan-American Medical Congress is to be held at Buenos Aires in September, 1918.

Medical Students in Switzerland.—The *British Medical Journal* states that the five universities of Switzerland have a total of 1,901 medical students enrolled, including 827 foreign students. Only 105 of the 291 women students are Swiss.

Exchange of Tuberculous War Prisoners.—The *Policlinico* relates that the Red Cross at Rome and the Red Cross at Vienna have arranged for the exchange between Austria and Italy of all war prisoners affected with tuberculosis, whatever the stage of the disease.

Mail between America and Italy.—The *Policlinico* of June 10 states that its files of American exchanges are complete to date, the only difference between war and peace times so far in this respect being that sometimes the issues of two or three weeks are received together.

Ascoli Succeeds Baccelli at Rome.—The University of Rome has called V. Ascoli, professor of medical pathology at the University of Pavia, to the chair of clinical medicine which has been vacant since the death of Baccelli. Professor Ascoli is the editor in chief of the *Policlinico* of Rome, founded by Baccelli and Durante, and now in its twenty-fourth year.

Requirements for Professional Course in Spain.—The *Medicina Contemporanea* of Lisbon mentions that the Spanish government, by a decree issued May 4, authorizes matriculation in the Spanish university of those with diplomas from foreign universities. At the same time it is specified that this confers no right to practice in Spain or its colonies.

Physicians Appointed Life Members of Austrian House of Lords.—According to a news item republished in the *Nederlandsch Tijdschrift*, of the fifty-five new life members recently appointed to the upper house of parliament in Austria, three are members of the profession: the two great surgeons, Profs. A. von Eiselsberg and J. von Hochenegg and the pathologist, Prof. Anton Weichselbaum.

Scarcity of Glycerin in Italy.—The military authorities have notified specifically the various medical organizations of the country warning them to use their influence that physicians refrain from prescribing glycerin except when nothing else can be used as a substitute, as glycerin is needed in manufacturing munitions. A special military board has charge of the toluol-benzol-glycerin supply.

Interned Soldiers in Switzerland.—The *Riforma Medica* states that the number of war prisoners interned in Switzerland far surpasses 30,000, the figure arbitrarily agreed on at first, and that it has been decided, therefore, to return some of the interned to their home land. They are to be selected principally among those at first supposed to be tuberculous but now cured. The respective governments guarantee not to call on these soldiers for further military service. Switzerland, it is also stated, has arranged for an interchange of prisoners between the belligerent countries. Five thousand are thus to be selected for interchange from among the permanently disabled, the fathers of more than three children, and soldiers with mental disease.

Asylum for Orphans of Physicians in Spain.—The *Medicina Contemporanea* relates that a recent government decree provides for the establishment of an institution to serve as a home for needy orphans of physicians. Half orphans are also eligible and the motherless children of disabled physicians, and orphans whose grandfather was a physician. The institution is to be called the Principe Asturias para huerfanos de medicos. Part of the expense of the institution is to be defrayed by a stamp tax. Physicians are to affix a special 10 cent stamp to death certificates, and a 40 cent stamp—to be paid for by the patient—in certificates for inability from sickness, etc. The stamps are not required on certificates made out for the actually indigent.

Asphyxiating Gas Bombs from Airplanes.—The Public Health Service at Milan has issued a circular with directions of what to do when airplanes drop bombs on the city. The people are told not to seek refuge in cellars, but in the middle stories of houses, on account of the danger from asphyxiating gas bombs. The windows are to be left open, to prevent injury from breaking glass, but if an odor of gas is detected, the windows and doors should be shut tight and people should stand erect and hold the children high. Cloths wet with water should be held over mouth and nose if obliged to pass through the gas. The local Red Cross has also on sale masks something like those worn by the soldiers at the front, to protect against drift gas. The mask is of a special polyvalent type, protecting against all kinds of asphyxiating gases, including phosgen, which is the one most dreaded as it is invisible.

Deaths in the Profession Abroad.—**O. O. Malm,** Christiania, Norway, who turned from the practice of medicine in 1890 to organize the veterinary system of Norway, which he guided to the last. He was also member of the Christiania city council and at one time of the legislature. He was 63 years old.——Major **J. M. Atkinson,** chief of the British government medical department at Hong Kong until his retirement in 1912. Since the war broke out he has been organizing military hospitals in England.——**J. H. Bartlet** of Ipswich, England, aged 88. His father and grandfather before him had been physicians at the same place and leaders in hospital work and endowments and in municipal administration.——**R. H. Brew,** Chew Magna, aged 55.——**A. F.**

Codd, Bromley, aged 60.——Lieut. **L. C. Scudamore,** aged 47. ——Capt. **J. J. Weaver,** chief physician at the Curran camp, aged 54.——Lieut. **R. W. Vaughan.**——**A. Biondi,** instructor in medical pathology at the University of Naples and author of a textbook on medical symptomatology and other works, aged 71.——**L. Picqué,** chief surgeon of the Asile Sainte-Anne at Paris.——**L. Beurnier,** a surgeon of Paris, aged 56. ——**F. Le Dantec,** the biologist-philosopher who has published twenty-five volumes on various fields of biology, "Mechanics of Life," "Heredity," "Destiny of Man," etc., besides numerous journal articles.——**W. B. Thorne,** London, a well known specialist in heart disease.——**W. H. Calvert,** Scotland, aged 57.——**R. Bentham,** retired, inspector-general of hospitals and fleets of the British navy, aged 70.——**W. Le Page** of Guernsey, aged 76.——**A. H. McCracken** of Falkirk, aged 52. The more recent casualty lists in Italy bear the names of **G. Tamborelli** of Venice, aged 29; Capt. **A. Restagno da Altare;** Lieut. **L. Antonini; V. Machiavelli; A. Magistretti** and **D. Coda.** In France, **S. Salles,** aged 22; **Sarazin,** chief of the casualty hospital at Bègles. In England, Major **W. G. Porter;** Capt. **F. J. Frere;** Capt. **O. Hairsine;** Capt. **D. R. King,** and Capt. **W. A. Smith.**

Candy Containing Cholera Germs Thrown Down from Austrian Airplanes in Italy.—The *Riforma Medica* of Naples reproduces a rush telegram sent by the commander of the army forces at Bologna to the commander at Codigoro. It states: "The candy (*confetti*) thrown down by the Austrian aviators in their raid on Codigoro the eleventh inst. has been analyzed in the laboratory of medical pathology at the University here (Bologna) and cholera bacilli have been found. The examination is not complete and possibly other germs may be discovered besides. Signed Gen. E. Escard." The Codigoro local authorities have warned the populace and ordered all such articles found to be brought to the local headquarters, and also to keep all open wells thoroughly covered. (Codigoro, on the map, is nearly 50 miles due south of Venice.)

Before accepting this story as actual fact, it should be remembered that the cholera vibrio is sensitive toward dessication and that its resistance is small. If dried, it dies in two hours. Incidentally, the books tell us that it is not transmissible by aerial infection. If the above story is true, this scientific statement is no longer reliable.

LONDON LETTER

LONDON, June 17, 1917.

The War

THE ARMY MEDICAL SERVICE

In an interview with Mr. Edward Marshall, the American correspondent, Sir Alfred Keogh, director-general of the Army Medical Service, described the work which has been accomplished, and expressed his appreciation of the assistance which America has already rendered and will be able to render in greater quantity. "In this greatest of all wars," said Sir Alfred, "one of the greatest of all episodes is the fact that the medical service has been restricted at no time either in money or in material. Lord Kitchener gave me an absolutely free hand. Men at the head of any medical department must have a free hand if the medical work of that campaign is to be properly carried out. Before the war we had gone a bit further than America has ever gone in the way of medical preparations for a great conflict.' We had organized the civil medical profession for military purposes. This was our great territorial medical organization. When the regular army surgeons left the country with the expeditionary force, all that was best in the civilian profession was already organized to take their places in the immense military work necessary at home, and continually to supply men for vacancies as they occurred abroad. One of my many responsibilities was to ascertain the absolute fitness of all to whom appointments were given. There is a tendency among young surgeons to hope that if a war comes it will give them experience in operative surgery. It has been my business to see that no man who I would not be willing to have operate on myself in case of an emergency is given an opportunity to operate on a soldier. Every soldier operated on finds ready for the work the best available surgical talent. At least every supervising surgeon is and long has been a man with a real reputation. We had to bring into the war organization a set of advisers on mental affections and neurasthenia, matters of much greater importance than in any previous conflict. Further, a sanitary committee was devised to advise on all technical matters, and a special sanitary committee was organized for service in the East. Another step was the creation of a special committee and the invention of new appliances for the conduct of gas defense. We have investigated the carrier problem in dysentery with results which have had notable effects in prevention. Men who have had dysentery are not allowed to remain in the ranks until examined so frequently that it is certain they are not carriers. To accomplish this we have had to congregate in special camps thousands of men, keeping them constantly under observation of bacteriologists. What has been accomplished is shown by this very week's report. Notwithstanding the size of our army, there are only three typhoid cases, fifty-four cases which may be typhoid, and twenty-two cases of paratyphoid.. Continually we are ready for emergencies. If bulletins show signs of typhoid at any point, everybody specially qualified to deal with it swoops immediately on that spot and the outbreak is extinguished. We have organized our specialists very carefully. One group, for example, waits in England ready for cerebrospinal meningitis among the army, while the government has a similar group equipped for work among civilians. The greatest problem of all has been furnishing quick help to the wounded. Here the motor has been of immense value. We could not conduct the medical department of this war without motors. Men hit in the trenches are in the hospital, roughly speaking, within two or three hours." Sir Alfred Keogh said that if he were asked to give advice to America it would be to trust Surgeon-General Gorgas and to urge the civilian population to work in as close harmony as possible with the army medical service. "Above all, organize slowly, and don't rush it. I would emphasize the importance of taking the brains of women very seriously. Women have done magnificent work here, and to them none owes a greater debt of gratitude than I do."

MOTOR HOSPITAL SHIPS ON THE TIGRIS

The climate and peculiar geographic conditions of Mesopotamia have rendered the problem of transport of the wounded a special one which has only recently been fully solved. The great waterway, the Tigris, is navigable up to Bagdad, a distance of 550 miles. For service on it a new type of hospital ship has been built in England. The length of this ship is no more than 160 feet, its beam about 30 feet, and so slight is the depth of the hull that the three decks, surmounted by a light sun deck, seem to rise sheer out of the water to a great height. The principal factor in the design is the light draft of the vessel, which when working, will amount to only 2 feet, 7 inches of water. The main and upper decks form two hospital wards. The main deck is fitted with tiers of hospital cots, some being specially wide and long for the treatment of serious gunshot fractures. To insure light and free ventilation with warmth in winter and coolness in summer, the sides of the lower wards are enclosed with teak framing having upper panels of splinter-proof glass arranged in the cottage window fashion and so contrived as to act as windcatchers in the summer heat and to exclude cold and rain in winter. The upper deck is intended for convalescents and is provided with a promenade and seats. The speed of the vessel is about 10 miles an hour, so that the journey to the base may take from four to eight days. Everything needed in a hospital is to be found on board. At the fore end of the upper ward is a spacious operating theater. The vessel is equipped with a refrigerating plant for supplying ice and with an aerating machine for making aerated waters.

THE MANAGEMENT OF CASES OF NEURASTHENIA AND ALLIED DISORDERS IN THE ARMY

The number of cases of neurasthenia which have occurred in the war is now considerable. Most of them are due to concussion—shell shock. Of 160,000 men now receiving pensions, a percentage of 15 suffer from functional nervous disease. A special medical board has been formed to examine all discharged soldiers suffering from neurasthenia with a view to awarding gratuities or recommending pensions. A certain number of the men have not sufficiently recovered to be able to earn a livelihood. For these, homes of recovery have been organized in different parts of the country. The methods adopted in these homes are: 1. An attempt is made to gain the confidence of the patient and to persuade him to adopt an optimistic frame of mind. 2. Remedial methods, such as massage and electricity are undertaken. 3. Outdoor work and recreation are supplied. French intensive gardening has been found to be an excellent means of treatment.

PARIS LETTER

PARIS, June 14, 1917.

The War

CONFERENCE TO STUDY THE PROBLEM OF THE REEDUCATION OF WAR CRIPPLES

This conference was organized by a Franco-Belgian commission (THE JOURNAL, Feb. 17, 1917, p. 559), and the inaugural meeting took place in the presence of the president of the republic. Among the papers of the first section, which was devoted to the subject of physical reeducation, were reports by Dr. A. de Marneffe on physiotherapeutic services, and by Dr. A. Imbert, professor of physiotherapeutics on the medical faculty of Montpellier, on the value of employment at a trade with respect to physical reeducation.

Dr. Marneffe emphasizes the following points: 1. It is desirable to persuade surgeons to evacuate their wounded much earlier to the institutes of physiotherapy without waiting for the so-called "irreparable" cicatrization of wounds. 2. Therapeutic gymnastics must not be practiced by other than a competent personnel with medical training (physicians, medically trained instructors and medical students). 3. Centers of university instruction in therapeutic gymnastics, similar to the one in Stockholm, should be created. 4. Therapeutic gymnastics should be taken up by the wounded as soon as possible, and thoroughly trained physical directors should be placed in the large surgical hospitals at the front where they will render better service than is accomplished with mechanotherapy. 5. In mechanotherapeutic treatment the method and the prescriptions of G. Zander should be scrupulously followed. 6. In accordance with the principles and practice of rational physical reeducation, only competent persons should be employed as aids and assistants in the rooms devoted to mechanotherapy. 7. Pedagogic gymnastics, or motorpathic reeducation, should be in charge of trained physical directors, and should be carefully supervised by a physician versed in physiotherapy. 8. In an institute of physiotherapy, reeducation with a functional basis must not be supplanted in any way by vocational reeducation. Functional reeducation should be here accorded first place. It should be entirely completed before it is replaced by the training which has a new occupation for the patient in view. In an institute of physiotherapy, reeducation solely from a vocational standpoint must take an auxiliary position. It should be regarded as an adjuvant of the physical treatment, and must remain subordinate to this. Likewise, it must be prescribed with prudence and with a full knowledge of its import, and it must be carefully supervised and controlled by the physiotherapeutic expert. It must not be given full rights except in cases in which all attempts of physiotherapy have plainly failed.

According to Imbert, employment at a trade should be regarded beyond any possible doubt as an effective agent in physical reeducation of the wounded who have not yet reached an age at which their powers of mind and body are definitely fixed. Such trade employment, however, cannot in all cases supply the place of proper mechanotherapy, if judiciously planned. As is the case with mechanotherapy, the choice of a particular trade from the standpoint of suitability belongs to the medical domain, since the work to be performed is a therapeutic agent. Again, as is true of mechanotherapy, the results will vary according to the good will displayed by the patient, and according to the manner in which the execution of the work is supervised.

In the second section Léon de Paeuw, dealing with the question of vocational reeducation, presented a report giving data on trade selection. He expressed his opinion to the effect that trade selection should lie with commissions, each composed of a physician, a close student of social pedagogy and a technical expert, all possessing a practical knowledge of matters pertaining to reeducation. Patients should be subjected to a thorough medical examination from the triple standpoint of anatomy, physiology and clinical evidence. They should be rigorously questioned in order to bring out complete information in regard to their knowledge, their previous occupation, their tastes and aptitudes, the number of their dependents, their ultimate plans for the future, and their economic condition. The principle will doubtless work out somewhat in this manner: The men, after having worked in the shops of the school for the purpose of orientation and of learning their special aptitudes, will practically choose for themselves their new trade. These men should, however, be guided by the members of the commission, and especially by the physician, whose duty it will be to decide whether or not the practice of the trade chosen is consistent with the physical condition of the subject. The commission will endeavor to interest every wounded man in his new trade by pointing out to him in a concrete manner the possibility of establishing himself in a given place with a definite hope of success. The wounded man, having thus decided on his new trade, will be admitted to the proper workshop. If, after a short period of trial, he shows the necessary aptitude, he will be retained; if not, he will again be brought before the commission. The commissions which have for their purpose the aiding of wounded men in the choice of a trade must be actuated by the following considerations: 1. Unless it is contrary to the best interests of the mutilated men, they should be allowed to readjust themselves to their old trade or occupation, or to a related trade that would be less fatiguing. 2. As far as possible, they should be returned to the same surroundings. 3. They should become artisans rather than factory workers, and they should not be directed toward trades that are overcrowded already, but toward trades in which man-power is most needed. 4. Purely utilitarian prosthetic apparatus should not be forced on mutilated men against their will. 5. Men who have lost an arm, especially men with a dislocated shoulder, who have sufficient intellectual ability, should not be directed toward manual pursuits, but should be allowed to choose employment not requiring manual skill.

The fifth section was devoted to the question of the blind, the deaf, and patients suffering from serious disturbances of the central nervous system. De Lapersonne, professor of clinical ophthalmology at the Faculté de Médecine de Paris, presented a report on the reeducation of those blinded in war. This, as a whole, comprises three successive stages: (1) preliminary reeducation; (2) reeducation properly so called, and (3) the return home.

As regards preliminary reeducation, de Lapersonne is of the opinion that it should commence as soon as possible after the wound is inflicted, and be directed mainly by the attending physician, since the latter is in a better position than any one else to make the patient understand and accept the situation. Preliminary reeducation should be, at the outset, of a purely material nature, with a view to accustoming the patient as soon as possible to an indispensable physical and mental hygiene. The character of the assistance rendered will depend on the social class to which the patients belong. This preliminary reeducation is already in force in all small training shops for the blind which have been established in certain hospitals at Paris, and also in the provinces. Reeducation, properly so called, is worked out in France in the special schools established by the state or by private enterprise. The first and most important of these is the Maison de convalescence des soldats aveugles, rue de Reuilly. The establishment of this school in the annex of the Hospice national des Quinze-Vingts is due to the efforts of M. Brissac. This school opened with an attendance of forty, which shortly increased to 200. Soon other schools were added. At present, throughout the provinces, notably at Amiens, Bayonne, Bordeaux, Caen, Chartres, Clermont-Ferrand, Dijon, Lyons, Marseilles, Montpellier, Nantes, Saint-Brieuc, Toulouse and Tours, there exist schools for reeducation which are intended to admit blind soldiers who come originally from these respective localities. In these schools the instruction varies greatly. It may be classified as instruction in manual arts and as preparation for intellectual pursuits. Among manual arts the most common are: brush making, basket work, shoemaking, massage, cooperage, mill wrighting, molding of aeroplane wheels, polishing of crystal glass stoppers, machine knitting, weaving, pottery, etc. Among the intellectual pursuits one may mention more particularly telephony, with slightly modified standard apparatus; music and the related occupations, such as tuning and manufacturing of pianos; typewriting, etc. It goes without saying that all the blind, while they are being instructed in some trade, will be taught the Braille system and also, if occasion demands, various methods which have been devised as supplementary to this. In this connection the system recently introduced by the ophthalmologist Cantonnet deserves particular mention by reason of its simplicity, the ease of its acquisition and the important service it is capable of rendering as regards communication between the blind and the seeing. Furthermore, the problem of reeducation has not been neglected in such matters as pertain to the mutilated blind and to those still possessed of partial vision. The former, when possible, are fitted with appropriate apparatus to aid them in their work. As for the latter, it seems to be

the general opinion that the best plan will be to establish special schools for them.

It is of the highest importance that the blind be not retained too long in the school for reeducation. The time spent in this school will vary from six to eight months (it will rarely be longer) according to the instruction that they are to receive. On leaving this institution, the blind may be divided into four classes: 1. Those who can return home, which will be the largest class, constituting 70 per cent. at least. Agricultural and urban workers will return to their own firesides and found a family. 2. Those who have no family or relatives, or who cannot take up their former life, for one reason or another, but who are otherwise good workers. These will be able, by means of their pension and their earnings, to live in proximity to their old home—as far as possible in the country, where they will find more comfort under better economic conditions, and where they will be able easily to walk about without a guide, which is indispensable for laborers or urban workers going to and from work. 3. Those workers who would not be able to conduct their own affairs, but would need constant direction. They can be placed in charge of some of their comrades, or a patron worthy of such confidence. 4. A small number, scarcely 10 per cent., incapable of working, or of any continuous endeavor. Under this head come the completely incapacitated (the wofully mutilated and the mental sufferers). The necessity of separate homes and retreats for such as these is self-evident. Some of these patients will naturally be put in soldiers' homes.

Dr. F. Chavanne of Lyons read a report on the deaf. According to him, permanent total deafness, or nearly total deafness, as the result of war injuries is fortunately very rare, reaching scarcely 2 per cent. of the cases. When, however, one has to deal with one of these deaf and mutilated men one must resort to reeducation, giving the preference to the lip-reading method. This special instruction must be given by teachers in institutions for the deaf and dumb and not by teachers with insufficient training. This instruction in lip-reading should be continued after the war, as long as those rendered deaf by the last battles require it.

SPECIAL PRIVILEGES GRANTED MEDICAL STUDENTS CALLED TO THE COLORS

M. Brenier, member of the Chambre des députés, has reminded the minister of public instruction of his repeated promises to grant medical students who have been called up certain privileges as regards completion of their studies, and Brenier has asked: (1) whether it would be possible to adopt, as of this date, such measures as would permit students called up to pursue their studies in accordance with the means at their disposal; (2) whether it was feasible to issue such instructions to the medical faculties throughout the country as would permit them to count as regular intramural study to the extent of twenty-four months, as far as the winning of credits is concerned, such time as they had spent in hospitals previous to their mobilization, either while going through their "stage," so called, or while serving as interns or dressers in hospitals; (3) whether, in case it should be impossible to give credit for work done *in absentia*, it would not be in keeping to permit those who had completed their researches and written their reports, also to pass their final examinations. To these questions the minister of public instruction has thus replied:

Medical students whose studies have been interrupted by mobilization will be permitted to benefit by certain special privileges long since promised and confirmed by the circular of the minister of public instruction which appeared in the *Journal officiel*, April 17, 1917. But, in order to be equitable, these privileges must be considered all together, when once hostilities have been terminated; moreover, these privileges will necessarily vary according to the duration of the mobilization, the time which shall mark the end of hostilities and the character of the studies pursued previously. The minister of public instruction can, as of this date, give the assurance that when the proper time shall come to apply these special privileges, all due account will be taken of services rendered by medical students who have been called to the colors, whether in the capacity of interns or visiting students (dressers) in hospitals, or as assistants in the hospital units at the front. As for examinations, medical students who have been called up have never been prohibited from presenting themselves for examination, provided always that the scholarship to which the examinations are to give sanction has been acquired in a regular manner before their enlistment, and that the military authorities controlling their actions shall allow them the necessary facilities for taking them.

MODIFICATION OF MEAL HOURS

Dr. Bergonié, professor of biologic physics at the Faculté de médecine de Bordeaux, some time ago called the attention of the Académie des sciences to the advantages which a rational modification of our meal hours would offer (The Journal, May 16, 1914, p. 1570). At a recent meeting of the academy he brought up the subject again. He thinks that in order to be in accord with our needs from hour to hour as regards heat and mechanical work, the storing up of energy by means of alimentation ought to take place at about 7:30 a. m., in the form of the principal meal of the day consisting of from 1,500 to 2,000 calories, and at about 6 p. m. of a secondary meal consisting of from 1,000 to 1,200 calories. Leaving out of consideration the variation in meal hours at different epochs and among different peoples, an experience of nearly ten years has convinced him that it is not only rational, but also simple and easy to accustom our system to this change of meal hours and of their relative importance, and that it results in many advantages from the standpoint of health. If one chooses the warm season for the adoption of this new time schedule and this readjustment of the alimentary ration, a season during which the energy value of this ration is minimal, and if one restrains oneself, partaking only of a light meal at 6 or 7 p. m., a few days will suffice in order to have a good appetite in the morning, one or two hours after rising, and to feel, at noon, only an aversion for food. According to Bergonié, there is no physiologic reason why the day's work of eight hours, beginning at 9 a. m. and ending at 5 p. m., for example, may not all be accomplished without any midday meal, leaving thus sixteen consecutive hours of liberty to the laborer or to the employee.

Marriages

Dudley Almonte Smith, M.D., Oakland, Calif., to Miss Florence Carol Allen of Spokane, Wash., in New York, recently.

Edward Austin North, M.D., Newport, Ky., to Miss Pauline Masterson of Carrollton, Ky., at Covington, Ky., June 20.

Lieut. William Roy Dillingham, M. O. R. C., U. S. Army, Sabetha, Kan., to Miss Ada Hobble of Liberal, Kan., June 28.

Theodore Peters, M.D., Chambersburg, Pa., to Miss Gertrude Miriam Lenhardt of Norristown, Pa., June 26.

Edmund Roger Samuel, M.D., Mount Carmel, Pa., to Miss Emily Gemellia Snyder of Strasburg, Pa., June 30.

William Lawrence Burns, M.D., to Miss Anita Reinhard, both of Cumberland, Md., at Baltimore, June 21.

Arthur King Bennett, M.D., Marquette, Mich., to Miss Margaret Collin of Penn Yan, N. Y., June 20.

Charles T. Reid, M.D., West Mineral, Kan., to Miss Carrie Welch of St. Paul, at Girard, Kan., June 2.

Fred. B. Welch, M.D., Janesville, Wis., to Miss Elsie May Douglass of Covington, N. Y., June 20.

Hermon Oscar McPheeters, M.D., to Miss Ethel Anderson, both of Redwood Falls, Minn., recently.

Surg. Allen Donald McLean, U. S. Navy, to Miss Lillian Marion Barnes of New York, June 26.

Edward G. Schussler, M.D., Oak Lawn, Ill., to Miss Grace E. Hart of Mount Forest, Ill., June 20.

Robert Kent Finley, M.D., Xenia, Ohio, to Miss Florence Ganiard of Jackson, Mich., June 23.

Frank Joseph Parizek, Denton, Mont., to Miss Grace E. Thompson, at Denton, June 17.

Neal Joseph Conan, M.D., to Miss Arline Mooney, both of Syracuse, N. Y., June 26.

John Harrison Fisher, M.D., to Miss Frances Lillian Turner, both of Williamsport, Pa., June 20.

Charles Allen Neafie, M.D., to Miss Effie Ethel Wallace, both of Pontiac, Mich., at Detroit, June 20.

Allan Churchill Woods, M.D., Baltimore, to Miss Anne Powell Byrd of Gloucester, Va., June 19.

Walter George McGuire, M.D., to Miss Frances Elizabeth McCormick, both of Chicago, June 20.

Deaths

Lieut.-Col. George Durfee Deshon, M.C., U. S. Army, Boston; Bellevue Hospital Medical College, 1890; University of Pennsylvania, Philadelphia, 1893; aged 52; a Fellow of the American Medical Association; the only officer of the Medical Corps of the Army who was a graduate of the United State Military Academy; Chief Surgeon of the Northeastern Department; died in his apartment in Boston, June 24. Colonel Deshon was made second lieutenant of the Twenty-Third Infantry in 1886 and resigned in 1890. He was commissioned lieutenant and assistant surgeon in the army, May 5, 1892; five years later was made captain and assistant surgeon; on Dec. 5, 1904 he became Major M. C., and on Aug. 6, 1912, was promoted to lieutenant-colonel. He served as surgeon of the Eleventh U. S. Volunteer Cavalry from August, 1889, to March, 1900; took part in the China Relief Expedition in 1900 and was also a surgeon of U. S. Volunteers from March, 1901, to February, 1903. His most recent assignments were as lecturer and professor on hygiene in the Drake University, Des Moines, Iowa; in the surgeon-general's office, Washington, D. C., as commander of the Army and Navy General Hospital, Hot Springs, Ark., and in the Panama Canal Zone in charge of the Ancon Hospital.

Brooks Hughes Wells, M.D., New York; College of Physicians and Surgeons in the City of New York, 1884; aged 57; a Fellow of the American Medical Association; vice president of the American Gynecological Association; a member of the New York Academy of Medicine; once president of the Medical Society of the County of New York; captain, M. O. R. C., U. S. Army; editor of the *American Journal of Obstetrics and Diseases of Women and Children;* emeritus professor of gynecology in the New York Polyclinic; associate surgeon to the Woman's Hospital in the State of New York; consulting gynecologist to Beth Israel Hospital and consulting surgeon to the Brattleboro (Vt.) Memorial Hospital; died in the Norwalk (Conn.) Hospital, July 6, from injuries received in a collision while bicycling near his country home at Southport, Conn., two days before.

Ferdinand Anson Stillings, M.D., Concord, N. H.; Dartmouth Medical School, Hanover, 1871; aged 68; a Fellow of the American Medical Association; formerly president of the New Hampshire Medical Society; visiting surgeon to the Margaret Pillsbury and Woman's Memorial hospitals, Concord; chief surgeon of the Boston and Maine system for thirty years; surgeon-general on the staff of Governors Tuttle and Rollins; one of the most prominent surgeons of New England; died at his home, June 22.

William S. Hoy, M.D., Wellston, Ohio; Jefferson Medical College, 1879; aged 61; a specialist in surgery; a member of the state legislature from Jackson County; formerly president of the American Association of Railway Surgeons and the International Association of Railway Surgeons; local surgeon of the Cincinnati, Hamilton & Dayton road; for thirty years chief surgeon of the Hoy Hospital, Wellston; was stricken with apoplexy while walking in Columbus, Ohio, June 13, and died a few minutes later.

George W. Sutton, M.D., Cleveland, Okla.; Cincinnati College of Medicine and Surgery, 1867; aged 73; for several years a member of the board of regents of the Oklahoma State University, Norman; one of the founders of the Bartlesville, Okla., Hospital; for twelve years surgeon at the Osage Indian Agency, Pawhuska, Okla.; died in the Bartlesville Hospital, May 23, from uremia.

William Henry Harrison Sias, M.D., Ellisburg, N. Y.; New York University, New York, 1882; aged 76; for three years school commissioner; for twelve years coroner of Jefferson County, and for two terms president of the village of Ellisburg; and justice of the peace; acting assistant surgeon, U. H. P. H. and M. H. Service for several years; died at his home, June 16.

Joseph L. Abt, M.D., Chicago; University of Michigan, Ann Arbor, 1892; College of Physicians and Surgeons, Chicago, 1893; a Fellow of the American Medical Association; and instructor in Northwestern University Medical School and a member of the staff of the Post-Graduate hospital; died in Eagle, Wis., June 28, after a nervous breakdown.

Jacob David Wurtz, M.D., Modena, N. Y.; Geneva, N. Y., Medical College, 1867; Bellevue Hospital Medical College, 1867; aged 71; county clerk of Ulster County for twelve years and for two terms a member of the legislature from the second district; a director of the State of New York National Bank, Kingston; died at his home, April 26, from cerebral hemorrhage.

Henry Green Preston, M.D., Brooklyn; Bellevue Hospital Medical College, 1869; aged 69; medical director of St. Martha's and Bethesda sanatoriums from 1892 to 1894; for several years surgeon to the Brooklyn Homeopathic Hospital and electrotherapeutist to the Cumberland Street Hospital; died at his home, June 21, from heart disease.

Henry Albert Fox, M.D., Gosport, Ind.; Starling Medical College, Columbus, Ohio, 1881; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; aged 54; fell from a barn-loft at his home, June 16, and died the next day from concussion of the brain.

Wesley Turner, M.D., Santa Fe, Ohio; Starling Medical College, Columbus, Ohio, 1881; aged 62; formerly a member of the Ohio State Medical Association; died at his home, June 19, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent, while of unsound mind.

Esther Lydia Wilhelmina Wright Nippes Marbourg, M.D., Johnstown, Pa.; Woman's Medical College of Pennsylvania, Philadelphia; 1882; aged 86; one of the incorporators of the Johnstown Memorial Hospital Association; died at the home of her grandnephew, in Johnstown, May 29, from bronchitis.

Gilbert Tennent, M.D., Atlanta, Ga.; University of Nashville, Tenn., 1885; aged 52; a surgeon in the Confederate service during the Civil War, and thereafter a practitioner of Marietta, Ga., and of McAlester, Okla.; died in the Soldiers' Home, Atlanta, May 25.

Joseph Francis Tearney, M.D., Baltimore; University of Maryland, Baltimore, 1879; aged 62; a Fellow of the American Medical Association; medical examiner for the Baltimore and Ohio system since 1884 and chief medical examiner since 1912; died at his home, June 25.

William T. Herring, M.D., Iola, Fla.; Atlanta, Ga., Medical College, 1887; aged 57; for many years a practitioner of La Grange, Ga., but since his retirement an orange grower in Florida; died at the home of his sister in La Grange, May 29, from acute gastritis.

Benjamin F. Synder, M.D., Camden, Ind.; Medical College of Indiana, Indianapolis, 1879; aged 68; a Fellow of the American Medical Association, and a charter member of the Carroll County Medical Society; died at his home, May 13, from heart disease.

Bert Leon Richardson, M.D., Gorham, N. H.; University of Vermont, Burlington, 1892; aged 38; formerly a Fellow of the American Medical Association; a member of the New Hampshire Medical Society; died at his home, May 4, from lobar pneumonia.

Albert Mortimer Wilber, M.D., West Unity, Ohio; University of Michigan, Ann Arbor, 1866; aged 80; formerly a Fellow of the American Medical Association; a veteran of the Civil War; died in the Sandusky, Ohio, Soldiers' Home, about June 17.

James Fletcher McKinstry, Jr., M.D., Gainesville, Fla.; Kentucky School of Medicine, Louisville, 1892; aged 48; a Fellow of the American Medical Association; and prominent as a surgeon of Florida; died at his home, June 13, from tuberculosis.

Anna Lukens, M.D., New York; Woman's Medical College of Pennsylvania, Philadelphia, 1870; aged 73; for several years resident physician at the New York Nursery and Child's Hospital, Staten Island, N. Y., died at her home, June 16.

Thacker V. Walker, M.D., Arlington, Tex.; Jefferson Medical College, 1854; aged 85; surgeon in the Confederate Army during the Civil War, and later postmaster of Quanah, Tex.; died in the Home for Aged Masons, Arlington, June 3.

William Herman Bell, M.D., Bellevue, Ohio; University of Michigan, Ann Arbor, 1892; aged 46; formerly a member of the Ohio State Medical Association; died in Dr. Reed's Hospital, Cincinnati, May 24, after an operation on the colon.

Felix H. Pipes, M.D., Waynesburg, Pa.; Wooster, Ohio, Medical College, 1879; for many years an employee of the government in Washington, D. C., but for two years past a resident of Kansas; died June 6, after a surgical operation.

Fred Greene Wood, M.D., Mansfield, Pa.; Jefferson Medical College, 1895, aged 49; a Fellow of the American Medical Association; died at his home, April 6, from lobar pneumonia.

Wilbur Laurin Hutchison, M.D., Hazleton, Pa.; Jefferson Medical College, 1891; aged 51; physician in charge of the State Free Tuberculosis Dispensary, and physician for the United Charities in Hazleton; died at his home, June 11.

Evan Williams, M.D., Sugar Notch, Pa.; Jefferson Medical College, 1885; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; aged 61; died recently at his home.

Charles Joseph Duffy, M.D., Long Beach, L. I., N. Y.; College of Physicians and Surgeons in the City of New York, 1883; aged 59; for several years chief surgeon of St. Michael's Hospital, Newark, N. J., died at his home, May 22.

Loren Edgar Rex, M.D., Wichita, Kan.; John A. Creighton Medical College, Omaha, 1899; aged 41; a member of the West Virginia State Medical Association; died in his office, in Wichita, June 20, from cerebral hemorrhage.

Christopher Seymour, M.D., Northampton, Mass.; University of Michigan, Ann Arbor, 1869; aged 73; a member of the Massachusetts Medical Society for forty-eight years; died at his home, May 19, from heart disease.

Oscar Houck, M.D., La Crosse, Wis.; Jefferson Medical College, 1896; aged 57; formerly a Fellow of the American Medical Association; died at his home, French Island, La Crosse, June 12, from pernicious anemia.

Frank Wilder Rastall, M.D., Chicago; Loyola University, Chicago, 1907; aged 40; a veteran police ambulance surgeon of the city; was instantly killed, July 2, in a collision between his ambulance and an automobile truck.

Orlando E. Black, M.D., Wilsonville, Ala.; University of the South, Sewanee, Tenn., 1900; aged 41; a Fellow of the American Medical Association; died in Birmingham, Ala., March 13, from encephalitis.

George William Betts, M.D., Pulaski, N. Y.; New York University, New York, 1880; aged 58; a Fellow of the American Medical Association; died at his home, April 18, from cerebral hemorrhage.

William Scott Keys, M.D., Los Angeles; Vanderbilt University, Nashville, 1909; aged 30; formerly a Fellow of the American Medical Association; died at his home, June 20, from heart disease.

Hiram K. Whitner, M.D., Chicago; Jefferson Medical College, 1859; aged 81; surgeon of United States Volunteers during the Civil War; for many years an inventor; died at his home, June 13.

George C. Brooks, M.D., Sunbury, N. C.; College of Physicians and Surgeons, Baltimore, 1884; aged 57; formerly a Fellow of the American Medical Association; died at his home, June 11.

Charles Edward Buck, M.D., Boston, Tufts College Medical School, Boston, 1903; aged 58; a Fellow of the American Medical Association; died May 11, from chronic interstitial nephritis.

John David Vaughn, M.D., St. Joseph, Mo.; National University, St. Louis, 1916; aged 25; an intern in the Ensworth Hospital, St. Joseph; died in that institution, June 23, from nephritis.

Frank Valentine Stutzke, M.D., Detroit; Michigan College of Medicine and Surgery, 1904; aged 39; city physician of Detroit from 1907 to 1909; died in Harper Hospital, Detroit, May 14.

Russell D. Adams, M.D., Monrovia, Calif.; Long Island College Hospital, Brooklyn, 1864; aged 76; for more than thirty years a resident of California; died at his home, June 11.

Charles E. Gilbert, M.D., New York; New York Homeopathic Medical College, New York, 1870; aged 68; formerly chief surgeon of the Atlantic Yacht Club; died at his home, June 18.

George Montgomery Chamberlin, M.D., Chicago; Rush Medical College, 1866; aged 73; for many years a practitioner and pharmacist of Chicago; died at his home, June 30.

Howard Robertson Stratton, M.D., Victory, N. Y.; Baltimore Medical College, 1908; aged 40; died in Cato, N. Y., June 2, from the effects of poison, accidentally self-administered.

William J. Cheany, M.D., Petersburg, Ill.; Rush Medical College, 1892; aged 47; formerly a member of the Illinois State Medical Society; died in Hot Springs, Ark., June 7.

Edmund Rufus Young, M.D., Brenham, Tex.; Tulane University, New Orleans, 1871; aged 73; died in the John Sealy Hospital, Galveston, June 17, after a surgical operation.

James G. Ward, Bloomington, Ind. (license, Indiana, 1897); aged 71; for thirty-five years a practitioner of medicine; a veteran of the Civil War; died at his home, June 17.

Pembroke M. Cowles, M.D., Chardon, Ohio; Cleveland University of Medicine and Surgery, 1874; aged 76; a veteran of the Civil War; died suddenly in Chardon, June 12.

Elizabeth Louise D'Artoise-Traver-Francis-Hilton, M.D., Brooklyn; United States Medical College, New York, 1881; aged 77; died at her home, June 14, from nephritis.

Charles Guy Reily, M.D., Los Angeles; Missouri Medical College, St. Louis, 1883; aged 58; a specialist in diseases of the eye, ear and throat; died at his home, May 26.

Sophia Meindermann Hartley, M.D., Ann Arbor, Mich.; University of Michigan, Ann Arbor, 1865; aged 84; died at the home of her daughter in Milwaukee, June 15.

Edgar W. Brown, M.D., Orange, Tex.; Tulane University, New Orleans, 1883; aged 57; twice mayor of Orange; an oil and lumber magnate; died at his home, June 16.

Albert Ashmead Bockius, M.D., Merchantville, N. J.; University of Pennsylvania, Philadelphia, 1867; aged 67; died at his home, April 14, from cerebral hemorrhage.

Thomas Andrew Dundas, M.D., Elmira, N. Y.; New York University, New York, 1878; aged 61; at one time coroner of Chemung County; died at his home, May 27.

Peter Gregory Cotter, M.D., Los Angeles; Albany Medical College, 1867; aged 60; a Fellow of the American Medical Association; died at his home, June 16.

Spencer De Forest Hinman, M.D., Grand Rapids, Mich.; New York Homeopathic Medical College, New York, 1877; aged 66; died in his apartment, May 22.

Martha Marcella Norris, M.D., Fostoria, Ohio; University of Michigan, Ann Arbor, 1876; for half a century a practitioner; died at her home, June 14.

Nelson Mowton Smith, M.D., South Danville, Pa.; University of Pennsylvania, Philadelphia, 1882; died recently at his home, from cerebral hemorrhage.

Paul Reinhardt Wohlar, M.D., Salt Lake City; Rush Medical College, 1912; aged 30; died in Washington, D. C., May 28, from a nervous breakdown.

Nathan G. Harold, M.D., Carmel, Ind.; Medical College of Indiana, Indianapolis, 1881, aged 71; died at his home, May 7, from capillary bronchitis.

Thomas J. Hoskins, M.D., Edenton, N. C.; University of Virginia, Charlottesville, 1886; aged 53; also a pharmacist; died at his home, in May.

James Augustus Page, M.D., Pittsburgh; Howard University, Washington, D. C., 1906; aged 50; died at his home, June 1, from neuritis.

Charles Ault, M.D., Montreal, Que.; McGill University, Montreal, 1855; aged 83; died at his home, March 4, from cerebral hemorrhage.

Eunice Cyrus Freeman, Pulaski, Tenn.; University of Tennessee, Nashville, 1901; died at this home, June 9, from cerebral hemorrhage.

Darius Rowe, M.D., Akron, Ohio; Medical College of Ohio, Cincinnati, 1872; aged 74; died at the home of his daughter in Akron, May 28.

Joseph Stein, New Orleans (license, Louisiana); aged 66; for forty-two years a practitioner of New Orleans; died at his home, May 28.

Samuel Jones, M.D., Neodesha, Kan.; American Medical College, Eclectic, Cincinnati, 1857; aged 92; died at his home, June 10.

W. N. Fleetwood, M.D., Cochran, Ga; Albany (N. Y.) Medical College, 1858; aged 82; died at his home, May 4.

O. H. P. Slayton, M.D., Senatobia, Miss.; Medical College of Augusta, 1886; died in Clarksdale, Ark., May 19.

J. P. Bailey, M.D., Indianola, Miss.; Louisville Medical College, 1882; aged 57; died at his home, May 7.

Edward Baxter Sloss, Oxford, Miss. (license, Mississippi, 1906); aged 40; died at his home, about June 6.

Ferdinand F. Dawn, Knoxville, Tenn. (license, Tennessee, 1889); aged 73; died at his home, May 28.

Hercules Ogle, Wabash, Ind. (license, Indiana, 1899); aged 73; died at his home, June 10.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TRINER'S AMERICAN ELIXIR OF BITTER WINE

Report of the Council on Pharmacy and Chemistry

Triner's American Elixir of Bitter Wine is a wine to which bitter drugs and laxatives have been added. Though evidently intended for public consumption, it is also advertised to physicians, and consequently the Council publishes this report.

Some recent advertisements read:

"It Acts Well and Is Very Palatable. These are the reasons why so many physicians recommend TRINER'S AMERICAN ELIXIR OF BITTER WINE. Free from any chemicals. Prepared from bitter herbs, roots and barks of eminent medicinal value and pure natural red wine. A safe relief in auto-intoxication, constipation, weakness, etc. Price $1.00. At drug Stores. Samples gratis upon request only to physicians."

"A Laxative Tonic. In cases of constipation and its sequelæ, auto-intoxication, weakness and nervousness you should try *Triner's American Elixir of Bitter Wine*. This preparation consists of Cascara Sagrada, Dandelion, Gentian Root, with Licorice in Pure Red Wine as a base, with Aromatics."

Triner's American Elixir of Bitter Wine is put up in bottles said to hold 1 pint, 5⅓ fluidounces. The label declares the presence of from 16 to 18 per cent. of alcohol by volume, and states that "no special tax is required by the laws of the U. S. for the sale of this medicinal preparation." The circular contains the following recommendations for its use:

". . . It should be used in all cases calling for a safe evacuation of the bowels, without weakening the body or causing any pain or other discomfort; in loss of appetite, nervousness and weakness."

"Triner's American Elixir of Bitter Wine consists of two principal ingredients, viz., Red Wine and Medicinal Herbs."

"Red Wine strengthens the intestines and regulates their work. It also increases the appetite, stimulates and strengthens the body."

"Use Triner's American Elixir of Bitter Wine always when a thorough cleaning-out of the intestines is needed. Arrange the dose to suit your condition and your habits."

"In Chronic Constipation the dose of Triner's American Elixir of Bitter Wine should be increased or taken oftener."

"Many Female Troubles are caused or aggravated by constipation and ladies should always pay good attention to this fact."

In addition to Triner's Elixir of Bitter Wine, the circular —in English, Polish, Russian, Spanish and other languages —advises the use of Triner's Angelica Bitter Tonic, Triner's Red Pills, Triner's Liniment and Triner's Cough Sedative.

The composition of this "wine"—some bitter drugs, a laxative and a tannin-containing, constipating red wine—and advertising propaganda all tend to the continued use of this alcoholic stimulant and thus to the unconscious formation of a desire for alcoholic stimulation. As the medical journal advertisements may lead physicians to prescribe this secret and irrational preparation and thus unconsciously lead to alcoholism, the Council authorized publication of this report.

EDITORIAL NOTE: The following "medical journals"—we use the "quotes" advisedly—have carried advertisements of the Triner preparation in some or all of their 1917 issues:

Medical Herald (St. Joseph, Mo.)
Medical Fortnightly (St. Joseph, Mo.)
Medical Sentinel (Portland, Ore.)
Therapeutic Record (Louisville, Ky.)
Western Medical Times (Denver, Colo.)
Urological and Cutaneous Review (St. Louis, Mo.)

SOME MISBRANDED NOSTRUMS*

Poland Wine Bitters.—Maryam, Walter and Casmir Struzynski of Chicago, who had traded under the firm name, Struzynski Bros., sold "Poland Wine Bitters," which, according to the federal chemists, was essentially a wine to which emodin-bearing and other unidentified drugs had been added. The stuff was labeled so as to convey the impression that the product was made at Chenstohow, Poland, according to the discovery of the Pauline Fathers, when as a matter of fact, it was made in the United States. The false and misleading label resulted in the charge of misbranding to which the defendants pleaded guilty. They were fined $100 and costs.—[*Notice of Judgment No. 4456.*]

Koenig's Nerve Tonic.—The Koenig Medicine Company, Chicago, Ill., made a preparation called "Pastor Koenig's Nerve Tonic." The government declared that the stuff was misbranded because the curative claims made for it were false and fraudulent and were applied knowingly for the purpose of defrauding purchasers. It was claimed that the preparation was "A Natural Remedy for Epileptic Fits . . . St. Vitus Dance . . . Dizziness, Inebriety . . . Spinal and Brain Weakness." Other equally ridiculous claims appeared on the package. The Koenig Medicine Company appeared as claimant. The court entered judgment of condemnation and forfeiture and ordered that the product should be delivered to the claimant after the cost of the proceedings had been paid and a bond of $200 executed, one of the conditions being that the product should be relabeled under supervision of a government official.—[*Notice of Judgment No. 4531.*]

Mrs. Edwards' Infant Syrup.—This baby killer was manufactured by one William H. Raser, Reading, Pa. It contained morphin and alcohol and was sold as a remedy for dysentery, diarrhea and summer complaints in children. The claims were declared false and fraudulent and made in reckless and wanton disregard of their truth or falsity. Raser pleaded guilty and was fined $50.—[*Notice of Judgment No. 4471.*]

Root Juice Compound.—This product was marketed by the Root Juice Medicine Co., Fort Wayne, Ind., and the label declared the presence of 20 per cent. alcohol. The government held that as the preparation contained less than 13 per cent. alcohol and was not a "root juice" these claims were false and misleading; further the authorities held that the claims that it was a "blood purifier" and would "strengthen and build up the system" as well as improve digestion and relieve "the strain upon the kidneys" were false and fraudulent. As no one appeared as claimant for the 72 bottles that had been seized, the court ordered that the product should be destroyed.—[*Notice of Judgment No. 4356.*]

FORT WAYNE DOCTORS DEFENDING SCIENTIST

Physicians of Indiana City in Discussion Over Strange New Medicine That Has Been Recently Creating a Furore in Davenport By Its Remarkable Cures of Disease.

There seems to be no end to the talk that has recently been created by the Indiana Scientist's discovery, Root Juice and its strange power over certain diseases.

For the past several weeks the entire city of Davenport has been startled by dozens of remarkable cures that the new liquid has effected there and now there comes a report from Fort Wayne, Ind., concerning a controversy among leading doctors of that city over the medicine and its cures.

Physicians who first scoffed at the idea and ridiculed its discoverer, have become serious and may have made a personal investigation. Dr. Jno. D. Hayes, a well known physician, when asked to express his views on the subject said "When all this talk about Root Juice started some days ago, I hooted at it and openly stated to some of my friends that it was just newspaper talk. But I must admit that the persistent reports which [illegible] interested me [illegible] that [illegible]

many other medicines that I am already familiar with."

Dr. Dudley M. Calvy, a prominent physician who has practiced medicine for more than 30 years, took the opposite view and when questioned said "Yes I have heard the talk about Root Juice and have been greatly interested in the many reports of its accomplishments. I am familiar with several of the cases in which tests were made and am convinced that the remedy possesses a truly wonderful power over certain diseases. I know that some physicians of the city do not agree with me, but I am sure any well posted and broad minded doctor who investigates the matter as I have, cannot fail to admit that the juice is a remarkable and startling discovery."

Dr. S. F. Sutton, another well known physician, said "I believe Root Juice is one of the most valuable medicines that has been given to suffering humanity in recent years. I have carefully watched the reports of many cures that have been brought about through its use. [illegible] career as a [illegible]

* This material, with much additional, appears in the new edition of the pamphlet "Convictions," price fifteen cents.

Correspondence

SHEET MICA AS A PROTECTIVE

To the Editor:—Three years ago, at the meeting of the Pennsylvania Railroad Surgeons' Association, I read a paper on the employment of sheet mica (mineral isinglass) as a covering for wounds. I should like to call attention to the valuable uses to which this substance may be put, in war as well as in railway surgery.

Block mica can be readily split to any degree of thickness, from several millimeters, as sold in the hardware stores, down to a thinness equal to the the finest Cargile membrane. Placed on the surface of a wound, its glassy texture renders it nonirritant and nonadherent, while at the same time the surface beneath can be viewed as under a glass. Thus, granulation tissue, bone repair, brain, nerve, tendon, intestine or other organic structure can be daily inspected, and changes, retrograde or reparative, noted without disturbance or exposure to infection of the area. The covering is readily lifted off or broken away if removal is required, or it may remain and become encysted in regions in which motion or friction is not great, there being no injurious irritation. In a case in which I was obliged to remove a considerable portion of skull in secondary trephining after injury, I inserted an oval sheet of mica about 4 cm. in longest diameter, which is still in place, three years after operation. Like asbestos (mineral wool), also, it possesses the advantage of being readily and rapidly sterilized by being passed through a flame, being indestructible by heat. When a large surface is to be protected by a mica covering, the mica should be laid on in small pieces, varying in size in accordance with the contour of the part to be covered and the amount of exudation or discharge beneath. In the paper referred to above, I recommended that a small block of this mineral be carried in the railway emergency kit. I should like to suggest that it might be found of equal efficiency in the soldier's first aid package, or at dressing stations.

E. O'Neill Kane, M.D., Kane, Pa.

"RAISING" THE QUANTITY OF NARCOTIC IN A PRESCRIPTION

To the Editor:—This morning a man with a nice looking face came to the Coleraine Hospital. He was using crutches, and had had one of his limbs removed, and also a portion of the pelvis, since he said that he was tuberculous. In short, he was a drug addict, and urgently begged me to give him morphin and cocain—just 2 grains of each. He hailed from Canada, and had only the day before secured enough from a physician at Hibbing to tide him over the day. He was on his way to Duluth to "take the cure."

Realizing that the person was like most of that type, I refused to give him any great amount of the drugs, and therefore wrote him a prescription for morphin and cocain, of each, gr. i. Imagine my surprise to find at the local pharmacist's where I chanced in a few hours later, to see my prescription calling for gr. iv each. Very clever. Merely a nicely added "v."

When I write my next prescription for a narcotic in behalf of a stranger, I think that I shall use our check protector.

C. R. Morss, M.D., Coleraine, Minn.

MERCURIAL POISONING

To the Editor:—Apropos of your timely editorial on this subject (The Journal, June 30, 1917, p. 1987), it may be of interest to note that the Hygienic Laboratory is endeavoring to secure authentic information with reference to poisoning cases reported in the public press. From Jan. 1 to June 30, 1917, 707 such cases have been reported on by physicians, and hospital and police officials; of these, 449 have been reported as suicidal, 174 accidental and 11 homicidal. Of the 707 poisoning cases, 239 were due to mercuric chlorid, and of these 61 have, *thus far*, been reported as fatal.

The purpose of this note is to call attention not only to the increasing number of such cases, but also to the urgent need of recognizing their possibly latent character and development. Some of these cases were reported originally as recoveries. Many of the patients are treated in emergency hospitals and, from the very nature of such service, are dismissed as soon as the acute symptoms are alleviated. In many cases also, the victims, for obvious reasons, are eager to escape supervision, and frequently leave against the advice of the attendants. That the possibility of a delayed, and often fatal, outcome is not yet fully appreciated, is seen in the fact that many of these patients have been dismissed as recovered when they have been under observation for but two or three days.

Murray Galt Motter, M.D.,
Library, Hygienic Laboratory, Washington, D. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HOOKWORM LARVA

To the Editor:—A perusal of medical articles would lead one to believe that, the larva of the hookworm is not to be found in a fresh stool. The presence of larval forms associated with hookworm ova has been the case in the majority of the specimens I have examined. There is some confusion in my mind in regard to what these larvae really are. To sum up, my question relates to the relative frequency of *Strongyloides intestinalis* (larva) and hookworm (larva) in the warm specimen. What other larva most closely resembles these two? Kindly omit name. W. M. W.

Answer.—The eggs and the larva of *Uncinaria* may be found in the stools. In the making of a differential diagnosis the organisms to be considered are the *Ancylostoma duodenale*, the *Necator americanus*, or American hookworm, and the *Strongyloides stercoralis*. The American hookworm is differentiated from the European type in that the head is strongly bent dorsad. The eggs are more pointed at the poles than those of the *Ancylostoma duodenale*, and are larger. The eggs of *Ancylostoma duodenale* are oval with broadly rounded poles. In fresh feces they contain four granular nucleated segmentation masses of the ovum separated by a clear space from the shell. The eggs of *Strongyloides stercoralis* never appear in the feces except during purgation. They are usually strung out in chains. Following is a table of differences between the larvae of *A. duodenale* and *S. stercoralis*. See Fantham, Stevens and Theobald, "The Animal Parasites of Man," William Wood & Co., New York.

DIFFERENCES BETWEEN LARVAE OF ANCYLOSTOMA DUODENALE AND STRONGYLOIDES STERCORALIS

	A. Duodenale	S. Stercoralis
1. Vestibulum oris	1.8 microns broad	3 microns*
2. Genital rudiment	3 to 5 microns long	25 to 33 microns*
3. Thickness	Thicker	
4. Esophagus	One-fourth body length	Half body length†
5. Tail	Pointed	Two fine points†
6. Motion	Less active than	
7. Intestine	Soon fills with dark granules	

* Rhabditiform.
† Filariform.

BLIND MASSEURS: INFORMATION WANTED

To the Editor:—I am interested in the blind of this country. I am investigating massage with a view to finding whether it would be a practical vocation for blind people.

Can you give me the addresses of any schools where massage is being taught as a science? Do you know of any magazines published for masseurs? Do you know of any correspondence courses being issued on the subject?

P. T. Richards, M.D., Ferris, Ill.

Medical Education and State Boards of Registration

Medical Colleges of China

The following list of medical schools of China was furnished by Dr. Edward H. Hume, chairman of the Council on Medical Education of the China Medical Missionary Association. These institutions were personally inspected by Dr. Hume during January, 1917. The list, therefore, is complete and the information furnished us reliable. The list follows:

City Province College
Canton, Kwangtung.—Chung-fa Medical College.
Canton, Kwangtung.—Hackett Medical College (women).
Canton, Kwangtung.—Kung Yee Medical College.
Canton, Kwangtung.—Kwangtung Provincial Medical College.
Canton, Kwangtung.—Kwang Wa Medical College.
Canton, Kwangtung.—Liang Yueh Medical College.
Changsha, Hunan.—Hunan-Yale College of Medicine.*
Chengtu, Szechuan.—West China Christian University School of Medicine.
Foochow, Fukien.—Union Medical College.
Hangchow, Chekiang.—Chekiang Provincial Medical College.
Hangchow, Chekiang.—Hangchow Medical Training College.
Hankow, Hupeh.—Union Medical College.
Hongkong, Hongkong.—Hongkong University School of Medicine.
Mukden, Manchuria.—Mukden Medical College.*
Mukden, Manchuria.—South Manchuria Medical College.
Peking, Chihli.—Board of Education Medical College.
Peking, Chihli.—Union Medical College.*
Peking, Chihli.—Union Medical College for Women.
Shanghai, Kiangsu.—German School of Medicine.
Shanghai, Kiangsu.—Pennsylvania-St. John's Medical School.*
Soochow, Kiangsu.—Elizabeth Blake Medical Training College.
Soochow, Kiangsu.—Kiangsu Provincial Medical College.
Soochow, Kiangsu.—Woman's Medical College.
Tientsin, Chihli.—Army Medical College.
Tientsin, Chihli.—Navy Medical College.
Tsinanfu, Shantung.—Shantung Christian University School of Medicine.*

The five colleges indicated by an asterisk (*) are eligible to membership in the Association of Medical Colleges of China. Membership in that association is limited to such colleges as provide a four-year medical course, preceded by adequate college courses, with laboratory work, in physics, chemistry and biology, based on high school graduation.

The Union Medical College at Peking was reorganized in 1916 by the China Medical Board of the Rockefeller Foundation. It was incorporated under a provisional charter granted by the regents of the University of the State of New York. Dr. Franklin C. McLean, formerly professor of pharmacology of the University of Oregon and lately a member of the staff of the Rockefeller Institute Hospital in New York, has been appointed head of the new institution and as professor of medicine. New buildings are to be constructed and, in order to permit the reorganization to go forward without confusion, the three lower classes of students have been transferred to the Shantung Christian University at Tsinanfu. The two upper classes will be carried through the remainder of their course by the present faculty. The foreign staff now consists of six doctors giving full time and six part time, besides one pharmacist and four nurses. No permanent assignments have been made to the faculty of the reorganized school with the exception of Dr. McLean as professor of medicine, but it is the desire of the trustees that men already on the field should be utilized so far as possible, owing to their interest in the work and their knowledge of the language and local conditions. With this need in view, a number of doctors in China have been given assistance, to enable them to go abroad for special study.

At Shanghai the China Medical Board is planning to establish a second high-grade medical school, but has taken no steps aside from continuing the clinical teaching in the Red Cross Hospital, where the Harvard Medical School of China formerly conducted clinics. The latter institution has been discontinued to make way for the new school. The China Medical Board has sent seven of the most promising of the Harvard students to the United States to complete their studies, looking toward the development of the teaching staff. Pending the organization of the new school, the China Medical Board is supporting a full-time teacher at the Pennsylvania-St. John's Medical School in Shanghai, and has appropriated $25,000 a year for the maintenance of the Red Cross General Hospital.

The Pennsylvania-St. John's Medical School is conducted under the auspices of the American Episcopal Church, with funds contributed partly by the Christian Association of the University of Pennsylvania. The teaching is in English, and there are ten foreign physicians on the staff. This school will probably merge with the new medical school being organized by the China Medical Board, or will be discontinued in the interests of the new school. The medical school of Boone University at Wu Chang, Hupeh Province, was recently merged with the St. John's University.

At Changsha is located the Hunan-Yale College of Medicine, which is conducted jointly under Chinese and American management. It has several foreign physicians, and the teaching is in English. It has received an annual grant of $16,200 for maintenance from the China Medical Board, which also recently made another appropriation of $30,000 for building and equipping a new laboratory.

The University of Nanking, a year or so ago, united with St. John's University and the Harvard Medical School in inviting the China Medical Board to establish a new school at Shanghai and, in order to aid in the development of the new department, determined to discontinue its own medical school. The university hospital, however, is being continued and the China Medical Board has provided a generous sum annually for salaries and other expenses. It has also pledged $25,000 for buildings and equipment, on condition that the university should raise an equal amount during 1917.

The Shantung Christian University School of Medicine at Tsinanfu has also been given financial aid by the China Medical Board, part of which was to provide the additional buildings and the cost of teaching the three classes transferred from the Peking Union Medical College. The board granted $100,000 for maintenance expenses, to be spread over five years, and $50,000 gold for buildings and equipment. The board, however, assumes no authority either to supervise the expenditure of money or to manage the institution. This school now has an enrolment of 110 students, including sixty who came from the medical school at Peking. The teaching is in the Chinese language. The staff has been strengthened so that this school is now one of the strongest in China.

The Mukden Medical College, like the medical school at Tsinanfu, is a union missionary institution. Teaching is in Chinese, and there are 106 students.

The German School of Medicine at Shanghai was closed in March, 1917, after diplomatic relations between Germany and China had been severed.

Physicians Registered in Arkansas in 1916

A request has been received from the State Medical Board of the Arkansas Medical Society asking for an explanation of the reference to Arkansas in Table 5, published in THE JOURNAL, June 9, 1917, p. 1761. That table shows that during 1916, 95 physicians were licensed in Arkansas, of whom 61 came from medical colleges of known classification. Of the 61, 15 were from Class A colleges, 22 from Class B colleges and 24 from Class C colleges. There were 34 other physicians registered, 6 from unclassified colleges and 28 who were licensed through reciprocity.

There are three separate and independent licensing boards in Arkansas, briefly referred to as the Regular, Homeopathic and Eclectic boards. The registrations by these boards of physicians from colleges of known classification were as follows:

Boards	Class			Totals
	A	B	C	
Regular	15	21	—	36
Homeopathic	—	1	7	8
Eclectic	—	—	17	17
Totals	15	22	24	61

Social Medicine, Medical Economics and Miscellany

What Is Orthopedic Surgery?

The *British Medical Journal*, June 9, comments favorably on the American Unit of Orthopedic Surgeons, and discusses what is meant by orthopedic surgery:

"The word 'orthopaedic' is an adaptation from the French *orthopédie;* the earliest authority Murray gives for this word is 1747, and for the English words 'orthopaedy' (ὀρθός straight; παιδία, rearing of children) and orthopaedic, 1840. No doubt the primary meaning was the correction of deformities in children, but Murray notes that it has been extended to mean the correction of bodily deformities in general. That this took place at an early date is rather strikingly shown in Le Gros Clark's translation of Dupuytren's lectures on 'Injuries and Diseases of Bones' (London, Sydenham Society, 1847). In speaking of what the surgeon should do when in consequence of fracture the ends of the bone assume an altered and defective relation to each other, he asks whether the surgeon should leave this evil tendency to work its own mischief, involving as it does a disagreeable deformity and curtailing the use of the limb, or whether he ought not to make some effort to remedy the defect by reestablishing the normal direction of the limb. And he answers that 'there exists considerable analogy between the deformities resulting from fracture and those which are attributable to other causes. It is well known how much benefit is derived from orthopaedic means in this latter class of affections; and if vicious curvatures of many years' standing may be corrected without inconvenience, how much rather may we anticipate the same desirable results, by the employment of analogous means, where the deformity does not date longer than a few weeks back, and is only maintained by a newly formed structure, which does not attain to the same consistence with bone until after the lapse of a very long time.' If we add to this the lesions of joints, which no doubt Dupuytren had in mind, although his subject did not lead him specifically to mention them, it is seen how large a field there is for the application of orthopaedic principles in military surgery."

The *British Medical Journal* asked the director of the unit, Dr. J. E. Goldthwait of Boston, Major M. R. C., U. S. Army, for his definition:

"Orthopaedics with us," said Major Goldthwait, " has to do with 'the diseases or lesions of the bones, joints, and muscles, and deformities.' At one time it was expected to devote itself to the deformities, but now it is recognized that the treatment of the disease or special lesion that is causing the deformity is the most essential feature. For that reason the treatment of a rheumatic or rheumatoid condition is as essential as the treatment of the joint manifestation. The same is true of the deformities due to nerve injuries. Military orthopaedics is not different from civil orthopaedics, except in the greater prevalence of trauma as the cause of the lesion."

On this the *British Medical Journal* comments:

"Those who turn back to the remarkable article on military orthopaedic hospitals contributed to this journal by Dr. Colin Mackenzie on May 26 last will see how nearly Major Goldthwait has packed Dr. Mackenzie's doctrine into a definition."

Spray Method of Finishing and Decorating as an Occupational Hazard

New methods in industry are frequently accompanied by new dangers to the workers. The spray or compressed air method of applying varnishes, enamels, shellacs, lacquers and practically every kind of finishing and decorating material brings with it increased danger of poisoning by various hydrocarbons used for quick drying and even spreading, as well as by lead and other poisonous substances in such material. This method is now largely used as it produces a better quality of work, allows greater speed, and is efficient and economical. Unless conditions are right and proper care is used, the sprayer or nebulizer produces a cloud of poisonous fumes which envelop the operator, often causing poisoning.

Dr. R. P. Albaugh, acting director of the division of industrial hygiene, Ohio State Department of Health (*Public Health Reports*, March, 1917), reports a fatal case in a boy of 18 who was a sprayer in a filler and varnish room. The cause of death assigned was "myocardial degeneration, probably caused by naphtha and turpentine poisoning." Six days before his death the patient had consulted a physician complaining of great weakness, periods of nausea, loss of appetite, tingling of the extremities, constipation, and hemorrhagic spots over the body. The systolic blood pressure was 85, temperature 97.2 and pulse 69. Two days later the patient was in bed, with the systolic blood pressure 75, temperature below 94, the pulse 90, and weak and irregular. The urine was cloudy, specific gravity 1.022, it was acid, and contained a trace of albumin, many hyaline and a few granular casts, and a few cylindroids. The blood count revealed 3,500,000 red cells, 12,400 leukocytes, 78.6 per cent. polymorphonuclears, 16.4 per cent. small mononuclears, 3 per cent. large mononuclears and 2 per cent. eosinophils.

Three other young men who were employed in the same department complained of symptoms similar to those of the patient, though in a milder degree. Investigation by Albaugh showed that the patient had been working in the department as a sprayer for eight months, and although the article on which he worked was covered by a large hood with a good exhaust, the spray when directed against a flat surface would envelop the operator unless he was careful of his position. It was observed that the workers paid little attention to being enveloped in the spray; no respirators were worn, nor was any adequate instruction given or enforced regarding exposure to the spray. Albaugh notes a number of faulty arrangements frequently found surrounding the employees of factories in this dangerous work.

Origin of Man

"The questions of the antiquity and origin of man," says Hrdlicka, "are naturally subjects of the greatest interest both to the scientist and to the layman, for they not only involve what is probably the most important problem in science, but touch the very foundations of human beliefs, ethics, and intellectual as well as organic progress in the future. Their detailed solution, also, is still far from us. But it may now be safely postulated that man did not appear on our planet as an entirely new and distinct being unconnected with the rest of terrestrial organic life. He is anatomically as well as physiologically but a highly specialized mammal that still carried numerous though now more or less useless vestiges or "reminiscences" of various lower stages through which he passed. Nor is there any good reason to regard him as the result of some freak of evolution, for his progress in the organic scale appears thoroughly logical. His ascent, judging from what has been already learned on the subject, though probably not uniformly accelerated, was on the whole slow. We shall seemingly come nearest the truth if we look on him as on the ultimate result or gradual modification in the upward continuity of trend of a highly specialized group of organic forms. He may be regarded as the topmost and dominating bough on an ancient mammalian tree whose roots intertwine, somewhere in the earlier Tertiary, with those of various advanced vertebrates. From this tree branches have doubtless diverged at different levels and become related species, some of these still persisting, while others have been long extinct. The stem began, so far as discernible, with lemurlike forms, from which in the course of time sprang, though scarcely in the order in which they now appear to us, the more simple and then the more highly organized primates. Among the latter then arose, it would appear, slowly or more likely rather suddenly, one or perhaps several forms characterized by more than the average physical instability; and the descendants of one or more of these strains, under the influence of changing environment, more especially food and climate, and perhaps other agencies, began to develop reduced teeth, larger brain, more erect posture, increased facility of intercommunication; and this differentiation apparently progressed until some strain of these changing beings reached that hazy dividing line below which was still the realm of the apes but above which commenced that of the true *precursors* of man."

Medicolegal

Validity of Statute Relative to Drugless Practitioners

(Crane vs. Johnson (U. S.), 37 Sup. Ct. R. 176)

The Supreme Court of the United States affirms an order denying an injunction to restrain the enforcement of the California statute of 1913, amended in 1915, empowering a board of medical examiners to prescribe a course of study and examination for those who would practice medicine, including drugless practitioners, but which statute it is provided therein shall not be construed so as to regulate, prohibit or to apply to any kind of treatment by prayer, or to interfere in any way with the practice of religion. The court says that it was alleged that the statute violates the fourteenth amendment of the Constitution of the United States, especially the equal protection clause thereof, in that it imposes greater burdens on the complainant than on others in the same calling and position, the complainant's particular grievance being set forth to be that the statute discriminates between forms of healing the sick and the use of prayer and other drugless methods. In other words, he attacked the classification of the statute as having no relation to the purpose of the legislation. Of course, he was confined to the special discrimination against him; he could not get assistance from the discrimination, if any existed, against other drugless practitioners. The case, therefore, was brought to the short point of the distinction made between his practice and certain forms of practice, or, more specifically, between his practice of drugless healing and the use of prayer. The only question was whether it was competent for the state to recognize a distinction in its legislation between drugless healing as practiced by the complainant and such healing by prayer. That there was a distinction between his practice and that of prayer, the complainant himself, it seems to the court, had charged. He had charged not only that he did not employ either medicine, drugs or surgery in his practice, but that he did employ faith, hope and the processes of mental suggestion and mental adaptation. These processes he did not describe. Presumably they were different from healing by prayer—different from treatment by Christian Science. But he alleged that for his practice he had become "particularly fitted by many years of study and practice therein." In other words, the treatment was one in which skill was to be exercised, and the skill could be enhanced by practice, and the objects of the treatment were diseased human beings whose condition was to be diagnosed. To treat a disease there must be an appreciation of it, a distinction between it and other diseases, and special knowledge is therefore required. And this was the determination of the state; but it determined otherwise as to prayer, the use of which, it decided, was a practice of religion. This court cannot say that the state's estimate of the practices and of their differences was arbitrary, and therefore beyond the power of government. And this it would have to say to sustain the contentions of the complainant, and say besides, possibly against the judgment of the state, that there was not greater opportunity for deception in the complainant's practice than in other forms of drugless healing.

City Not Liable for Injury from Materials Negligently Left at Hospital

(Frost vs. City of Topeka (Kan.), 161 Pac. R. 936)

The Supreme Court of Kansas affirms a judgment in favor of the city, holding it not liable in damages for the plaintiff's injury in this case, where it says that the petition disclosed that the plaintiff's parents became afflicted with smallpox and were confined in the detention hospital of the city. The plaintiff, a child of 9 years, was taken to the hospital with his parents and was allowed to play about the hospital grounds. He found a sack of dynamite caps which employees of the city had taken to the hospital grounds and had neglected to remove or render inaccessible. The plaintiff carried the caps into the hospital, accidently exploded one of them, and injured his hand so that some of his fingers had to be amputated. Now the court considers that while the hospital, with its equipment and grounds, was property of the city, it was property held and maintained in a public and governmental capacity, and not in a private proprietary capacity. The sole object in establishing and maintaining the hospital was to conserve the public health, a purely governmental function exercised under the police power of the state. The enterprise was public and governmental from its inception, and in doing the work of constructing the building and installing the water and sewerage systems the city acted as a mere agency of the state in promoting the general welfare. While the dynamite caps were property of the city, they were mere contributions to the enterprise, the same as building material, water pipe, sewer pipe, and other articles necessary to secure the ultimate end in view. If in performing the work of constructing and equipping the hospital and putting the grounds in condition for occupancy, materials of any kind were used or disposed of in a negligent or unsafe way, the capacity in which the city acted shielded it from pecuniary liability. When construction was completed and maintenance of the institution of a detention hospital was begun, the relation of the city to the project remained the same, and if for any reason the premises were not safe for occupancy by persons detained in the hospital, the same exemption from liability existed. It makes no difference in principle whether the building or the grounds appurtenant to the building be defective, and it makes no difference whether the dangerous agency act by penetration or by concussion. The employees of the city who caused the hospital grounds to be unsafe by negligently failing to remove the portion of the supply of dynamite caps not consumed in blasting might be personally responsible for the consequences of their conduct, but the city was not.

Notice Must Be Given to Maintain an Action for Malpractice

(Klingbeil vs. Saucerman (Wis.), 160 N. W. R. 1051)

The Supreme Court of Wisconsin affirms an order overruling a demurrer to the defendant's answer in this action for malpractice, based on an alleged breach of an implied contract on the part of a physician to exercise proper skill and care in treating the plaintiff's broken leg. The answer pleaded in bar the failure of the plaintiff to give the notice provided for by Subdivision 5 of Section 4222 of the Wisconsin statutes of 1913. The court says that this appeal raised the question whether the notice provided for by said Subdivision 5 must be given in order to maintain an action for malpractice based on a breach of the implied contract on the part of the physician to exercise proper skill and care in the treatment of the plaintiff. That part of the section in question reads as follows:

> No action to recover damages for an injury to the person shall be maintained unless, within two years after the happening of the event causing such damages, notice in writing, signed by the party damaged, his agent or attorney, shall be served on the person or corporation by whom it is claimed such damage was caused, stating the time and place where such damage occurred, a brief description of the injuries, the manner in which they were received and the grounds upon which claim is made and that satisfaction thereof is claimed of such person or corporation.

In *Frechette* v. *Ravn* (145 Wis. 589, 130 N. W. R. 453), this court held that in an action for malpractice based on tort, the notice must be given, but expressly reserved the question here presented. It is to be noticed that the clause in question, though in the nature of a statute of limitations, differs therefrom in that it requires a preliminary notice to be served within a specified time, instead of fixing the time within which an action shall be begun; also that the notice must be served in every action for injuries to the person, irrespective of the form of such action. It was stated in *Frechette* v. *Ravn* that an action in tort for malpractice was "plainly one to recover damages for injuries to the person." Why? Because the defendant's conduct resulted in an injury to the person of the plaintiff. If it did so because of the tort, which consisted of a breach of duty created by law, it is difficult to see why it does not do so when the same identical conduct produces the same identical result, though the camplaint

charges the breach of a duty created by contract between the parties instead of the breach of a duty created by law. Damages may flow from the breach of both duties, and likewise an injury to the person may result from the breach of a contract as well as from a tort. Where, as in malpractice, there is an option to sue in tort or on contract, each cause of action is grounded on the same identical acts of the defendant, namely, his failure to exercise the proper skill or care, or both. The very same conduct gives the plaintiff his option as to remedies. Hence, if the defendant's conduct when sued is tort gives rise to an action for injuries to the person, the very same conduct must give rise to the same kind of action when sued on contract. The word "action" as used in the statute has reference to the subject-matter or nature thereof, not to its form as a matter of remedial procedure. Whether it be in tort or on contract, it is an action to recover damages for injuries to the person, and comes alike under the terms of the statute, since the phrase therein, "no action to recover damages for injuries to the person," refers to bodily injuries, and not to injuries to feelings.

Society Proceedings

COMING MEETINGS

Western Roentgen Society, Kansas City, Mo., July 20-21.

AMERICAN GYNECOLOGICAL SOCIETY

Forty-Second Annual Meeting, held at Pittsburgh, May 31 and June 1, 1917

The president, DR. FRANK FARROW SIMPSON, Pittsburgh, in the Chair

Value of the Avoidance of Shock and Trauma in the Treatment of Eclampsia

DR. EDWIN B. CRAGIN, New York: In the first series of 20,000 deliveries at the Sloane Hospital, New York, with 251 cases of eclampsia, the maternal mortality was seventy-one, or 28.28 per cent. The fetal mortality was 151, or 16.15 per cent. In the last series of 15,774 deliveries, with 138 cases of eclampsia, the maternal mortality was twenty, or 14.49 per cent. The fetal mortality, including stillbirths and those dying before the mother left the hospital, was sixty-two, or 44.92 per cent. The reduction in mortality has been brought about by avoiding shock and trauma; by avoiding chloroform; by preparing the cervix before delivery; by avoiding accouchement forcé, and by treating the toxemia while preparing the cervix.

DISCUSSION

DR. J. WHITRIDGE WILLIAMS, Baltimore: I agree with Dr. Cragin about sparing the patient every possible amount of shock during the time of delivery. Unlike Dr. Cragin, in the last few years I have resorted to bleeding which has had a very good effect in a considerable number of cases of eclampsia; consequently it is almost a routine in my service now to bleed every woman with antepartum eclampsia, and when we do bleed we take away from 750 to 800 c.c. In a certain proportion of cases that ends the misery. The woman has no more convulsions; the albuminuria falls; the nitrogenous constituents of the urine rise just as though she had not been bled, and such women occasionally go on for some weeks or even months and have a baby at term without further eclampsia.

DR. REUBEN PETERSON, Ann Arbor, Mich.: I long ago gave up the use of chloroform in the treatment of eclamptic women. My investigations of both abdominal cesarean section and vaginal cesarean section have shown conclusively that if a woman can be taken early in her eclampsia, both operations are remarkably successful in saving both the mother and the child. I have seen good results from bleeding, but have not obtained satisfactory results from the use of veratrum viride.

DR. BROOKE M. ANSPACH, Philadelphia: In how many cases of eclampsia do Drs. Cragin and Williams find acetone and diacetic acid in the urine, and how do they meet the condition of acidosis? During the last year I had a woman to treat who developed serious symptoms of toxemia more than two weeks after delivery. She had three severe convulsions in one day. She showed remarkable improvement after the intravenous injection of a pint of a 2 per cent. solution of sodium bicarbonate, and she had another injection the next day and recovered.

DR. EDWARD P. DAVIS, Philadelphia: I would not deliver a woman in eclampsia and toxemia unless she showed signs of going into labor; then I would assist her with the least possible traumatism. My objection to the bag is the fact that its long continued pressure sometimes exhausts these patients and leads to the development of convulsions. Abdominal cesarean section is rarely indicated, and vaginal cesarean section still more rarely indicated. I have come to have a high regard for venesection in eclampsia, if it is followed by the use of salt solution or sodium bicarbonate in the vein.

DR. HAROLD C. BAILEY, New York: Eclamptics are particularly prone to develop shock. Accouchement forcé has been discontinued in the Bellevue Hospital Service. In 1900, when we took systolic blood readings, several eclamptics were delivered by that method and in several instances we found there was a drop of 100 mm. of mercury. We then made blood pressure readings following the use of veratrum viride, and in one instance in which the drug was pushed we found a drop of 140 mm. of mercury with the woman in profound shock. Since that time we have not used veratrum viride previous to delivery. As regards vaginal and abdominal cesarean section, my views are in accord with those of Dr. Cragin.

DR. E. GUSTAV ZINKE, Cincinnati: The principal cure for puerperal convulsions lies in prophylaxis during the pregnant state. Some of these cases will terminate fatally in spite of what we do.

DR. E. B. CRAGIN, New York: In regard to diacetic acid and acetone in these cases of eclampsia, we recognize all types of cases, one in which the liver is most involved, the other in which the kidney is more involved, and in a case in which the liver is the organ more involved, we are more apt to get acetone and diacetic acid, and there soda has proved valuable.

SYMPOSIUM ON RADIUM THERAPY

Methods and Results of Radium Treatment of Uterine Hemorrhage Due to Other Causes than Malignancy

DR. HOWARD A. KELLY, Baltimore: Radium therapy here is as simple and as safe as a dilatation of the cervix, and consists in nothing more than introducing a uterine sound with a hollow tip containing 500 millecuries of emanation and applying it successively to eight different points in the uterus, fifteen minutes at each point. This practically always cuts short the menstrual function, and so simply obviates the need for a hysterectomy. In young women, menstruation can sometimes be modified without even suspending it. In one case pregnancy and delivery of a healthy child followed the treatment. Seven of 100 patients had heart disease, two epilepsy, two insanity, and others Bright's disease and tuberculosis, manifestly bad risks for hysterectomy. No serious sequelae follow the radium treatment. Practically in all cases of fibroid tumors, radium has checked the monthly flow completely when desired. In young women it has been possible in some instances to cause the tumor to disappear without stopping menstruation permanently.

Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors

DR. C. JEFF MILLER, New Orleans: In the treatment of uterine bleeding from various causes, radium is almost a specific. Its most striking effect is its certain control of uterine bleeding due to the metropathies, or aberrant ovarian function. Aggravated cases of the menopause, usually

relieved by hysterectomy, can be controlled by a single application of radium. Similar results are obtained in bleeding complicating fibroids of the uterus, and certain types of fibroids may disappear or markedly shrink. Radium will not supersede surgery in the treatment of fibroids. Large growths giving rise to pressure symptoms, or presenting evidences of degeneration, as well as submucous tumors, should be treated surgically, if operation is not contraindicated. When desirable to preserve the function of the generative organs in young women, surgery should be considered the more conservative procedure, since it permits myomectomy. Its effect in controlling bleeding associated with chronic metritis and polypoid endometritis is equally satisfactory, and when the dosage and screening are carefully measured, it may be used as a last resort in excessive bleeding in young girls, without causing cessation of the menses. Itching associated with kraurosis of the vulva, as well as pruritus, can often be allayed by radium.

Radium Therapy in Uterine Hemorrhage of Benign Origin

DR. JOHN G. CLARK, Philadelphia: In cases of hemorrhage of the uterus of benign origin, such as that from small myomas or myopathic change, particularly in women over 38 years of age, radium in small doses is one of the most effective remedies, relieving practically all of the patients from even the slight hazard of a major surgical operation. The hemorrhages in such cases stop promptly and with rare exceptions permanently, without untoward effects incident to the use of radium. Those near the menopause respond best. Cases in former years, in which even repeated curettages failed to alleviate the hemorrhage, are promptly terminated after the application of 50 mg. of radium for twenty-four hours. In over 100 cases there has been but one failure to relieve the hemorrhagic symptoms.

Radium in Uterine Cancer

DR. HAROLD C. BAILEY, New York: The platinum applicators holding large amounts of radium emanation are placed in an iron capsule containing mercury. This mercury "bomb" offers efficient protection to the normal tissues and permits of the entire lower part of the pelvis being swept with a sufficient dose in a period of usually not more than four or five hours. In addition, heavy applications are made over the lower part of the abdomen in three areas and directed toward the upper part of the pelvis. In this manner, from the standpoint of the amount of radiation, three or four times the dose possible with the ordinary technic can be directed into the pelvis without subsequent irritation.

DISCUSSION

DR. FRANCIS CARTER WOOD, New York: I have had little personal experience with the use of radium in the treatment of uterine hemorrhage. Those cases I have seen have suggested the necessity of an accurate preliminary diagnosis of the condition of the endometrium by the thorough microscopic study of curettings removed with care so as to obtain as large fragments as possible and promptly preserved. Without such precautions in obtaining the material, a satisfactory study is often impossible. I have seen a few cases treated in which the radium did not cause a cessation of the hemorrhage until such doses had been administered as to cause atrophy of the ovaries. As to the treatment of fibroids, I feel from my pathologic experience that only a moderate percentage can be properly handled by radiation. It must be remembered that after extensive radiation, hysterectomy, should it prove necessary, may be very difficult, owing to the cartilaginous fibrosis of the parametrium.

DR. HERMAN J. BOLDT, New York: While radium has certain advantages in the treatment of hemorrhages from benign causes, I have failed to hear the final results from its use. Similar results may be obtained from the proper intra-uterine application of zinc chlorid. The advantage of radium is that fewer applications may be necessary. One may obtain a result after one or two treatments which may require a dozen treatments by zinc chlorid. Radium may cause less pain than zinc chlorid, but the proper application of a 50 per cent. solution of zinc chlorid in the form of an intra-uterine tamponade will bring about a result equally as good as that by radium so far as the cessation of hemorrhage is concerned.

DR. ERNEST C. SAMUEL, New Orleans: When the hemoglobin is low, I have found that a smaller dosage of radium spread over a longer period of time produces less toxic symptoms than a large dose given for a shorter length of time. Almost 90 per cent. of patients for whom I make intrauterine applications or applications around the cervix develop a distressing nausea and vomiting and some elevation of temperature.

DR. HENRY SCHMITZ, Chicago: I believe the radiotherapist who uses small amounts of radium obtains as good results as the man who uses larger amounts. In benign conditions we use fewer milligrams of radium, and the physical condition of the patients is much better than in malignant conditions. The malignant cases frequently show advanced cachexia and anemia. The resistance of these patients is materially lowered, and in such cases it is necessary to use larger amounts of radium rays than in nonmalignant conditions.

DR. WILLIAM P. GRAVES, Boston: One thing I have noted which has not been mentioned, that the successful reaction of the cancer cells to radium depends considerably on the histologic structure of the cancer. Cancers that are purely squamous in type, starting from the portio vaginalis, are much more favorable to treatment. Those are the cases in which I find the disease disappears like magic. But those cancers which originate in the endocervix, that is, adenocarcinoma of the cervix, do not respond in the same way.

Vulvar Carcinoma

DR. FREDERICK J. TAUSSIG, St. Louis: Eight of our fifteen patients received deep Roentgen-ray treatment, four of them with the Coolidge tube, but in none was there more than a temporary improvement. We have come to the opinion that the Roentgen ray can be considered only as an auxiliary to surgical measures in vulvar cancer. We had no radium to use, but it is difficult to see how its results would have been any better in view of the early and extensive involvement of the lymphatic system in these patients. There remained, therefore, only radical surgical removal as a therapeutic agent.

(To be continued)

AMERICAN PEDIATRIC SOCIETY

Twenty-Ninth Annual Meeting, held at White Sulphur Springs, W. Va., May 28-30, 1917

The President, DR. FRANK SPOONER CHURCHILL, Chicago, in the Chair

Primary Carcinoma of the Liver in Childhood

DR. J. P. CROZER GRIFFITH, Philadelphia: This case occurred in a girl, aged 21 months, whose family history was negative. Below the costal margin, midway between the midsternal and the right mammillary line, was a visible, hard, smooth mass, apparently with a rather firm edge. It appeared to be connected with the liver. At operation a tumor mass was found in the right lobe of the liver, extending through the entire thickness of the lobe. As the case appeared to be inoperable, the wound was closed. The tumor consisted entirely of epithelial cells without a trace of liver tissue. The growth continued to increase in size, until death supervened, nine months after the patient came under observation.

Intravenous Injections in Infancy

DR. CHARLES HUNTER DUNN, Boston: At the Infants' Hospital we use the longitudinal sinus for the purpose of obtaining blood for the Wassermann test and to give intravenous injections of physiologic sodium chlorid solution, sodium bicarbonate, antitoxin, circulatory stimulant drugs and solutions of glucose. The cases in which the intravenous injection of glucose was used were approximately all cases of extreme atrophy and inanition produced by various forms of gastro-intestinal disease. The theoretical basis for the use of intravenous glucose injections in such cases is that

apparently the vicious circle produced by gastro-intestinal disorder has become so extreme that the digestion and absorption of sufficient fluid to furnish the energy requirement of the body is impossible. Glucose is the only food substance which exists outside of the body in the same form in which it circulates in the blood and is utilized by the tissues. If introduced directly into the blood it may, through a temporary supply of even a small quantity of fuel, break the vicious circle for a sufficient length of time to permit improvement of the condition to take place. In determining the quantity of glucose we rather arbitrarily adopted a 5 per cent. solution. In choosing the quantity of glucose for an individual baby, one sixtieth of the body weight was taken. In eighteen cases the records are sufficiently complete for the purposes of this report. Of these eighteen patients, thirteen died and five recovered. After the injections, seven showed no improvement, five showed a temporary slight improvement, and six showed a striking immediate improvement. There was no evidence that the improvement was due to the glucose; it was quite possible that the apparent improvement was due to giving the fluid into the circulation. However, there was sufficient evidence of the glucose being of value to warrant its further trial. In five cases, more than one injection was given, and in one case, six daily injections of 3 gm. each; in this instance the patient was apparently kept alive by the glucose, and eventually recovered.

DISCUSSION

DR. HENRY F. HELMHOLZ, Evanston, Ill.: We have been doing the same kind of work. Dr. Woodyatt has devised a pump by which sugar solution may be introduced at a uniform rate, and this rate can be varied at will. With the injection of 0.8 gm. per kilogram of body weight, no sugar was excreted in the urine. We have not tried giving the glucose to the class of patients in which Dr. Dunn has used it, so I cannot say whether or not there is a lessened sugar tolerance in such cases. In the concentration in which we have used the solution, I do not think there is any danger of overloading the circulation and placing too much strain on the heart.

DR. GODFREY R. PISEK, New York: We have been using a syringe with a double valve, so constructed that we can withdraw the fluid in the usual way and then make the injection by the gravity method. This provides an additional element of safety by eliminating the possibility of introducing the fluid too rapidly.

DR. HOWARD C. CARPENTER, Philadelphia: A word of warning should be sounded against the introduction of too powerful drugs. I know of one case in which salvarsan was administered by properly carried out technic, and the child died eleven days later. At necropsy an abscess was found on the frontal lobe of the brain.

DR. ALFRED F. HESS, New York: In a case of hemorrhagic disease in an infant, the longitudinal sinus was used for aspiration. The child died, and necropsy revealed that the blood had gone down along the side of the brain, between the skull and the brain. I feel some hesitancy in entering the sinus in hemorrhagic cases.

DR. JULIUS P. SEDGWICK, Minneapolis: We have been using the longitudinal sinus for making injections, and in a few instances of hemorrhagic disease I believe it was a life-saving procedure.

DR. HENRY F. HELMHOLZ, Evanston, Ill.: Within the last three months I have seen three cases which resulted fatally after injection, even though the injection was carefully given. At necropsy the entire cortex, as well as the base of the brain, was covered with blood, suggesting the possibility that a pathologic process was to blame.

DR. CHARLES HUNTER DUNN, Boston: Probably it would be safe to give a stronger solution of glucose than we used, but in the beginning of work of this kind it is necessary to proceed very cautiously. I think that, perhaps, in giving injections by the longitudinal sinus we may make an exception of salvarsan. We gave it a number of times, and everything went well. Then we gave it in two cases, and the patients died. Nothing could be found at necropsy that could be attributed to the administration of the salvarsan, but since this happened we have stopped giving salvarsan in this way. We made observations in a severe case of acidosis in which intravenous injections of sodium bicarbonate had been given, and in spite of this treatment the patient was going down hill rapidly. After a large injection of glucose, this child improved and went on to recovery.

Therapeutic Use of Blood Serum in Marasmus

DR. ROWLAND G. FREEMAN, New York: The histories in our cases of marasmus seem to show that when the injections were stopped, the improvement was not so rapid and there would be a loss in weight; but as soon as the injections of horse serum were resumed, the child again began to gain in weight. After giving two injections of horse serum it is advisable to test the child for sensitization before giving a third injection. In one child in this series, the second injection was followed by the development of an urticarial rash. This child was considered sensitized, and no further horse serum was given. It seems useless to give less than 20 c.c. of serum. Under proper control this is a safe procedure, and in almost hopeless cases apparently produces marked improvement. It has a much greater sphere of usefulness than has hitherto been appreciated.

DISCUSSION

DR. CHARLES HERRMAN, New York: Last year, during an epidemic of this type of disease, we had two cases that were extremely severe. Being unable to obtain human serum, we used horse serum with very good results. Both these children would probably have died. The questions are whether it is necessary to use serum, and whether whole blood would not be as good as the serum.

DR. FRITZ B. TALBOT, Boston: It would be of interest to know what Dr. Freeman has done for the future of these babies; to what degree he has sensitized them to horse serum. I have not been as much impressed by these results as I would like to be; I have seen a number of babies show similar improvement without treatment of this kind.

DR. L. EMMETT HOLT, New York: I agree with Dr. Talbot that one sometimes sees similar results in cases not treated in this way. In one of the cases, however, the results seem very striking.

DR. ROWLAND G. FREEMAN, New York: Horse serum is not only more easily available than human serum, but one can obtain it in any quantity desired. One of these babies was given so many injections that had we been dependent on human serum we would have been compelled to stop the treatment. As to the possibility of sensitizing these babies to horse serum, it must be remembered that they were practically moribund, and the possibility of sensitization was of secondary importance. I do not think it makes any difference whether we use human serum, horse serum, or whole blood.

Twenty-Four Hour Metabolism of Two Normal Infants, with Special Reference to the Total Energy Requirements of the Infants

DR. FRITZ B. TALBOT, Boston: The purpose of this investigation was to determine how much energy was expended in the ordinary muscular activity of an infant during a twenty-four hour day. One of these infants was in the respiratory chamber twenty-two hours and thirty-one minutes, and the other twenty-three hours and ten minutes. Accurate records were kept of the time during which the infants were nursed, the time they cooed, kicked, played, smiled, were changed and cried. In the observations on the first baby it was found that the "basal" metabolism of 285 calories was increased 143 calories (67 per cent.) by muscular activity. In the second baby the basal metabolism was increased 70 per cent. The metabolism of the babies could not be measured during the periods when it was necessary to remove them from the chamber, but an estimate of what it would have been was made by taking the average maximum total metabolism and dividing it by twenty-four hours. This was added to the measured metabolism, and gave the total calories produced

in twenty-four hours. The energy lost from the body through the urine and feces was also calculated, and had to be supplied in the food. The greatest single factor to be taken into consideration was the fat lost in the feces, which with the urea in the urine should not exceed 15 per cent. of the total measured metabolism in a normal infant. By adding the calories used up in muscular activity to the basal metabolism, a rough estimate of the caloric requirements of the normal infant might be made. From these observations it is probable that infants fed on cow's milk, and particularly on formulas containing large amounts of protein, will require even more food than infants fed on human milk, because the stimulating action of the protein causes extra heat to be burned during digestion. These calculations do not apply to sick infants or those with subnormal temperature.

DISCUSSION

DR. THOMAS S. SOUTHWORTH, New York: Have you made any calculations as to how much energy is used up when certain portions of a baby's body are exposed to changes in temperature? I recently saw a child which was being dressed without shoes and stockings, and I advised the parents to cover the feet and legs of the baby so that it should not waste energy through a loss of heat that should go into growth. It has been suggested that additional nourishment must be given to provide for the loss of heat when certain portions of the body are exposed.

DR. CHARLES HUNTER DUNN, Boston: The factor of individual variation enters into these calculations to an enormous extent. In working out figures for metabolism and calories, what evidence is there that they can be applied to other children, since there may be a wide individual variation. It is a great mistake foreign investigators have made when they assume that if they take a certain number of figures and divide their sum by the number of cases, the result will be applicable to an individual. The result is never applicable to any individual baby.

DR. GODFREY R. PISEK, New York: I should like to ask Dr. Talbot whether he does not think the estimate is low for the amount of energy the child used in nursing.

DR. B. RAYMOND HOOBLER, Detroit: It would seem that Dr. Talbot has approximated very nearly the actual heat production of these babies. I think we are finding that nearly all active children require 110, 125 or even 150 calories per kilogram of body weight. All the factors in this estimation have been very accurately worked out.

DR. FRITZ B. TALBOT, Boston: In regard to the loss of heat from exposure, the surrounding temperature makes no difference in the amount of heat the baby produces, unless there is chilling, and then when he shivers he produces heat. He produces additional heat only when he performs additional exercise. The new-born baby is sometimes given a water bath immediately after birth. This is wrong, as it may result in a subnormal temperature and a lowering of metabolic activity and depression of the vital functions. If the new-born baby is strong enough to shiver and cry, it then produces heat and is able to withstand the shock. Dr. Lusk has brought out an important point in a recent investigation in a boys' school. The boys were very active, and a careful estimation of the number of calories they were consuming showed that they were eating one and one-half times as much as a laboring man.

Studies on Blood Calcium

DR. DAVID MURRAY COWIE, Ann Arbor, Mich.: The calculated amounts of calcium in the serum and corpuscles, respectively, of 100 c.c. of ox blood and of man's blood show that the serum of ox blood contains more calcium than the serum of man's blood. The corpuscles and fibrin of man's blood contain more calcium than the corpuscles and fibrin of ox blood. The whole blood of man contains more calcium than whole ox blood. The possibility of a variation in the relative proportion of corpuscles and serum under altered states of the organism must also be taken into consideration. There is more serum per volume of blood in severe anemia and in cases of hydremia.

Uric Acid Content of the Blood in the New-Born

DRS. JULIUS P. SEDGWICK and F. B. KINGSBURY, Minneapolis: We have endeavored to determine whether or not the high uric acid excretion during the first few days of life is accompanied by a simultaneous increase of this substance in the blood. All the new-born subjects that served in this investigation were normal. We found that the average values for sixteen determinations of the uric acid content of the maternal and placental blood were identical, being about 3 mg. per hundred mg. blood. In some cases the infants were given water in addition to the ordinary diet of breast milk. The uric acid content of the blood is higher the first three or four days after birth than at birth. In the period between the second and third days the value reaches a maximum. During the first three or four days this value was higher than the maternal and placental figures. From a maximum of 3.9 mg., the blood uric acid falls off slowly to 2.9 mg. on the fifth day, and then falls rapidly to 1.6 mg. by the eighth to the eleventh day. These results fit well as the connecting link in the theoretical chain of early leukocytosis, fall in leukocytosis, flood of uric acid in the blood, high uric acid excretion, and uric acid infarcts.

DISCUSSION

DR. PERCIVAL J. EATON, Pittsburgh: You said that some of these babies were getting water and others were not. Did you notice a greater concentration of uric acid in the urine of the former?

DR. J. P. SEDGWICK, Minneapolis: We did not make any examinations of the uric acid excreted in the urine, but only of the uric acid content of the blood.

Focal Lesions Produced in the Rabbit by Colon Bacilli Isolated from Pyelocystitis Patients

DR. HENRY F. HELMHOLZ and MISS CAROL BEELER, Evanston, Ill.: The mode of infection in pyelocystitis is still an open question, but in recent years prominence has been given to the hematogenous route of infection. In order to determine whether pyelocystitis could be produced by the hematogenous route, experiments were performed on rabbits. There were two series of experiments. In the first series, sixty-six animals were injected intravenously with eight different strains of colon bacilli. Of the sixty-six animals, twenty-six showed focal lesions of one kind or another. The organs were affected as follows: kidney eleven times, cecum seven times, gallbladder seven times, appendix five times, stomach four times; in addition there were single instances of hemorrhagic infarction of the descending colon, ulcerative colitis, hemorrhagic enteritis and duodenal hemorrhages. Thus, the organisms did not show any special tendency to localize in the kidneys, and focal lesions were just as likely to appear in any organs of the gastro-intestinal tract. In 90 per cent. of instances, the rabbit can excrete colon bacilli through the kidney without harm to the kidney itself.

In the second series of experiments, a mixture of colon bacilli and pneumococci were injected into eleven animals. The kidneys were infected in six of the eleven rabbits, or in about 60 per cent. This is, relatively, a much larger number than in the first series. It is possible that in human pyelocystitis there is a double infection, and the second one is overlooked. It is possible, therefore, to produce typical pyelocystitis in the rabbit by intravenous injection of colon bacilli, isolated from human cases. The relative number of kidney infections is greatly increased if a mixture of organisms is injected.

DISCUSSION

DR. CHARLES HUNTER DUNN, Boston: A baby coming under our observation was aspirated for empyema, and the pus from the chest showed a pure pneumococcus infection. A blood culture showed no pneumococcus but a pure culture of colon bacilli. Two days later the child developed a typical pyelocystitis. I was formerly not inclined to favor the hematogenous theory of infection in pyelocystitis, but I am coming more and more to believe in it.

DR. WILLIAM PALMER LUCAS, San Francisco: One of my house surgeons has repeated Dr. Helmholz' work, and our

results have been practically identical. From our present knowledge we are warranted in thinking that there is no definite localization in the kidney, but a general infection by which any of the viscera may be infected.

DR. HENRY HEIMAN, New York: If one accepts the theory that pyelocystitis is a hematogenous infection involving other organs as well as the kidneys, and that the colon bacillus is the predominating organism, how are we going to explain the fact that of the cases in which the pelvis of the kidney is infected, 75 per cent. occur in girls, in whom infection through the urethra occurs more readily than in boys?

DR. HENRY F. HELMHOLZ, Evanston, Ill.: I have been much interested in Dr. Dunn's case which showed the colon bacilli in the blood, and pyelocystitis developed. It has been my experience that if other organisms are present that may possibly have caused the pyelocystitis, one may not find them but usually finds a member of the colon group. This is because the colon bacilli have a tendency to overgrow other organisms. It is not necessary to assume that, because in one case the infection is by the hematogenous route, all patients with pyelocystitis are infected by this route. I believe the kidney can be infected in a number of ways.

Case of Precocious Menstruation

DR. WILLIAM PALMER LUCAS, San Francisco: This case may also be reported as one of linear nevus, because the patient showed an interesting skin lesion and marked keratitis. The patient was a girl, 19 months of age, whose family and past history were entirely negative, save for the fact that she began to menstruate when 15 months of age. She had a slight flow of blood from the vagina, and was more irritable than usual at that time. She also had a linear skin lesion between the nose and lip on the right side, which was yellowish verging into brown, and resembling a keratitic condition. She had well developed mammae and a somewhat advanced development of the small bones. Her intelligence was normal. The faculty of attention was phenomenally developed; she did things systematically that it would have been difficult for a child 3 or 4 years of age to do.

DISCUSSION

DR. HOWARD C. CARPENTER, Philadelphia: Cases of polypoid sarcoma of the vagina have been reported in children in whom there has been hemorrhage. The possibility of neoplasm must be considered before making a diagnosis of precocious menstruation.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Review of Tuberculosis, Baltimore

June, I, No. 4

1 Tuberculosis Theses; Diagnostic, Prognostic, Therapeutic. L. Brown, Saranac Lake, N. Y.—p. 193.
2 *Diagnosis of Pulmonary Tuberculosis. L. Hamman, Baltimore. —p. 206.
3 *Parafuchsin as Stain for Tuberculosis Bacilli. P. A. Lewis and R. B. Krauss, Philadelphia.—p. 218.
4 *Experimental Tuberculosis in Guinea-Pigs Following Preliminary Treatment with Tuberculin by Nose. H. Sewall, C. F. Hegner and C. Powell, Denver.—p. 220.
5 Undergraduate Instruction in Tuberculosis. A. K. Krause, Baltimore.—p. 233.

2. **Diagnosis of Pulmonary Tuberculosis.**—Although he has practiced physical diagnosis assiduously, Hamman still regards expert pulmonary examinations as the most difficult field of internal medicine. He believes that the majority of physicians never attain unusual skill in detecting slight pulmonary abnormalities. There is little danger of the average physician finding too much in the lungs, for often lesions that are gross to the expert are to him sources of difficulty and uncertainty. Furthermore, a large number of tuberculous patients never pass through what could be called clinically an early stage, and therefore physicians have not the opportunity to detect the disease in this favorable period. In those instances in which the disease comes on more slowly, early diagnosis will be favored by putting a careful clinical study of symptoms above the censorship of percussion and auscultation. Sputum examinations, the Roentgen ray and the tuberculin tests are valuable additional aids, but the information furnished by the Roentgen ray and by tuberculin must be interpreted cautiously. The great obstacle in the way of early diagnosis is the difficulty of separating tuberculous infection from tuberculous disease. If physicians can ever distinguish clinically that nice point where latent infection first passes into threatening activity, the problem of early diagnosis will be solved. At present this point is blankly obscure and physicians have no means of deciding definitely which doubtful cases are within safety, which have just passed without and which are hovering about the threshold. Therefore, the early diagnosis of pulmonary tuberculosis is nearly always a probability diagnosis, for when absolute evidence appears the disease is seldom in an early stage. There will always be differences of opinion among clinicians about such diagnoses and about the evidence on which they rest. The important lesson for the physician is that while he must investigate thoroughly and judge cautiously, still he must be willing to act on reasonable probability and not allow the patient's life to be thrown away as he calmly awaits the full verification of his suspicions. The important lesson for the sociologist is that he must see the insuperable difficulties in the way of early diagnosis on a large scale and abandon his efforts to make early diagnosis an essential feature of the campaign for the eradication of tuberculosis.

3. **Parafuchsin as Stain for Tubercle Bacillus.**—Lewis and Krauss are using pararosanilin as a stain for the tubercle bacillus. Pararosanilin salts have the essential staining qualities of rosanilin salts, and the tubercle bacillus when stained with them resists decolorization with acids in the same degree. Owing to difference in solubility, the solutions of pararosanilin salts must contain more alcohol in order to be effective. The method of employing pararosanilin is: 1. Make a saturated alcoholic solution. 2. Add 20 c.c. of this to 80 c.c. of a 5 per cent. solution of phenol. The result is a clear solution of about the same color intensity as the usual carbol fuchsin. When heated over the free flame the alcohol burns off and there is somewhat more rapid precipitation of the dye than there is with the old preparation. In the meantime, however, staining has taken place with the usual intensity and the resistance to decolorization by acids is the same.

4. **Experimental Tuberculosis in Guinea-Pigs.**—Three preparations of tuberculin, a Berkefeld filtered watery extract and two emulsions of ground bacilli of different concentrations were used by the authors on three groups of guinea-pigs. After a preliminary course of tuberculin instillations by the nose each group of treated pigs, together with a number of normal animals, was given a series of spaced intravenous injections with the corresponding tuberculin. At intervals of fifty-six and one hundred and twelve days after the last intravenous injection all animals were inoculated with a culture of virulent tubercle bacilli. For each form of tuberculin used in the preparatory treatment the average duration of life after inoculation with the living germs was decidedly less in animals which, in addition to the spaced intravenous injections, had undergone a course of nasal instillation than in those (controls) which had suffered intravenous injections alone. Also, the duration of life was shorter in pigs which had received the smaller quantities of tuberculin by the nose than in those which had received the larger. Compared with normal animals inoculated with tubercle bacilli without previous treatment (final controls) the resistance of the instilled pigs was unchanged or slightly lowered, while that of those which had received intravenous injections of tuberculin without previous instillation was somewhat decidedly raised. So far as these experiments go they point to the conclusions that the influence of absorption of small quantities of tuberculin by the nose, followed by a series of spaced intravenous injections either does not change or slightly lowers the normal resistance of guinea-pigs toward tuberculosis, while the

intravenous injections alone, without preliminary instillation, rather decidedly raises resistance.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, XXVI, No. 1

6 Technic of Examination of Static Labyrinth. I. H. Jones and L. Fisher, Philadelphia.—p. 1.
7 Analytic Study of Rinne and Other Tuning Fork Tests. J. W. Downey, Jr., Baltimore.—p. 31.
8 Suppurative Labyrinthitis; Diagnosis and Treatment. A. B. Duel, New York.—p. 54.
9 Gumma in Fossa of Rosenmueller Causing Deafness. I. M. Heller, New York.—p. 70.
10 Histopathology of Nose and Throat. L. K. Guggenheim, St. Louis. —p. 73.
11 Tonsils as Atrium of Infection in Poliomyelitis. E. M. Seydell, Wichita.—p. 98.
12 Tubercular Mastoiditis—Radical Operation under Cocain Anesthesia. H. Hays, New York.—p. 109.
13 Salivary Fistula Following Simple Mastoidectomy with Cervical Abscess. F. C. Schreiber, Washington, D. C.—p. 113.
14 Case of Labyrinthine Fistula with Complete Loss of Cochlear Function and Persistence of Normal Vestibular Function. J. Auerbach, New York.—p. 117.
15 Results in Four Cases of Modified Radical Operation for Chronic Purulent Otitis Media. H. B. Blackwell, New York.—p. 121.
16 Tonsil Question in Children. G. W. Boot, Chicago.—p. 129.
17 Clinical Problems Relating to Faucial Tonsils in Adults. G. E. Shambaugh, Chicago.—p. 135.
18 Surgical Treatment of Suppuration in Jugular Bulb. J. McCoy, New York.—p. 140.
19 Salient Facts Regarding Tonsils in Children and Adults. J. C. Beck, Chicago.—p. 149.
20 Diagnosis of Inflammatory Diseases of Labyrinth. J. B. Rae, New York.—p. 181.
21 Treatment of Labyrinthine Affections. W. C. Phillips, New York. —p. 189.

Canadian Medical Association Journal, Toronto

June, VII, No. 6

22 *Case of Diabetes Associated with Hemochromatosis. A. H. McCreery, Pittsburgh.—p. 481.
23 Modern Laboratory Investigation of Nephritis. R. W. Mann, Toronto.—p. 503.
24 Fractures of Skull from Neurologic Standpoint. G. D. Robins, Montreal.—p. 529.

22. **Diabetes Associated with Hemochromatosis.**—The outstanding points in the case cited by McCreery both from the clinical and pathologic side would indicate the following conditions. The patient was a man, 46 years of age; he was a plumber by occupation, and had been a heavy whisky drinker. From 1902 until his death he suffered many gastrointestinal disturbances and loss of weight. There was pain and tenderness in the epigastrium, but the liver was not obviously enlarged. The spleen was not palpable. The patient yearly suffered attacks of influenza and had numerous attacks of neuralgia, rheumatism and lumbago. On Aug. 22, 1913, there was found a trace of sugar in the urine which soon became excessive and the patient rapidly weakened. Acetone and diacetic acid were found in December, 1913, and the patient died in semicoma with a terminal decrease in percentage of sugar and almost suppression of urine on Jan. 12, 1914. At no time was the urine sugar-free. At necropsy there was found hemochromatosis of liver, heart, spleen, suprarenal, thyroid and lymph glands; portal cirrhosis of liver and fibrosis and fat necrosis of the pancreas. The pathologic findings, therefore, were typical of the so-called bronzed diabetes.

Colorado Medicine, Denver

June, XIV, No. 6

25 Strabismus or Squint; Its Treatment by Glasses. J. J. Pattee, Pueblo.—p. 151.
26 Surgical Tuberculosis of Peritoneal Cavity. O. M. Shere, Denver. —p. 154.
27 Application of Prognostic Lines on Roentgenograms in Treatment of Joint Fractures. E. H. Skinner, Kansas City, Mo.—p. 159.
28 Balance of Powder in Infection. H. G. Wetherill, Denver.—p. 168.
29 Diarsenol Administered by Brayton's Simplified Method of Giving Salvarsan. H. T. Low, Pueblo.—p. 170.

Florida Medical Association Journal, Jacksonville

May, III, No. 11

30 Bacteria in Economy of Nature. H. Byrd, Princeton.—p. 324.
31 Early Diagnosis and Home Treatment of Pulmonary Tuberculosis. R. H. McGinnis, Jacksonville.—p. 330.
32 Leading and Misleading Symptoms of Kidney Stones. E. P. Merritt, Atlanta, Ga.—p. 331.
33 Diagnosis and Treatment of Incipient Senile Cataract. W. H. Adams, Jacksonville.—p. 333.
34 Appendical Abscess; Its Treatment and Comparative Frequency in Small Towns and Rural Districts. N. A. Baltzell, Marianna.—p. 336.
35 Neurasthenia. J. B. White, Ormond.—p. 339.
36 Cancer. F. F. Ferris, Apalachicola.—p. 341.

Georgia Medical Association Journal, Augusta

June, VII, No. 2

37 Sins of Omission and Commission of General Practitioner of Today. C. K. Sharp, Arlington.—p. 27.
38 Tender Heel. T. Toepel, Atlanta.—p. 29.

Journal of Biological Chemistry, Baltimore

June, XXX, No. 2

39 *Peptone Hypoglycemia. H. McGuigan and E. L. Ross, Chicago. —p. 175.
40 Rôle of Yeast in Nutrition of Insect (Drosophila). J. H. Northrop, New York.—p. 181.
41 *Influence of Protein Intake on Creatin Excretion in Children. W. Denis and J. G. Kramer, Boston.—p. 189.
42 Enzyme and Reaction of Medium in Autolysis. M. Morse, Chicago. —p. 197.
43 Biologic Efficiency of Potato Nitrogen. M. S. Rose and L. F. Cooper, New York.—p. 201.
44 Alleged Ninhydrin Reaction with Glycerol, etc. V. J. Harding, Montreal, Canada.—p. 205.
45 Improved Chemical Methods for Differentiating Bacteria of Coli-Aerogenes Family. W. M. Clark and H. A. Lubs, Washington. —p. 209.
46 *Thermal Decomposition of Oxytocic Principle of Pituitary Solution. H. S. Adams, New Brunswick, N. J.—p. 235.
47 Nutrition Investigations on Cottonseed Meal. A. E. Richardson and H. S. Green, Austin, Texas.—p. 243.
48 Use of Van Slyke Carbon Dioxid Apparatus for Determination of Total Carbon Dioxid in Sea Water. J. F. McClendon, Minneapolis.—p. 259.
49 Standardization of New Colorimetric Method for Determination of Hydrogen Ion Concentration, Carbon Dioxid Tension, and Carbon Dioxid and O_2 Content of Sea Water, of Animal Heat, and of Carbon Dioxid of Air, with Summary of Similar Data on Bicarbonate Solutions in General. J. F. McClendon, Minneapolis.—p. 265.
50 *Studies of Acidosis. Bicarbonate Concentration of Blood Plasma; Its Significance and Its Determination as Measure of Acidosis. D. D. Van Slyke and G. E. Cullen, New York.—p. 289.
51 *Id. Method for Determination of Carbon Dioxid and Carbonates in Solution. D. D. Van Slyke, New York.—p. 347.
52 Id. Electrometric Titration of Plasma as Measure of Its Alkaline Reserve. G. E. Cullen, New York.—p. 369.
53 Id. Relationship Between Alkaline Reserve and Acid Excretion. R. Fitz and D. D. Van Slyke, New York.—p. 389.
54 Id. Alveolar Carbon Dioxid and Plasma Bicarbonate in Normal Men During Digestive Rest and Activity. D. D. Van Slyke, E. Stillman and G. E. Cullen, New York.—p. 401.
55 Id. Blood, Urine and Alveolar Air in Diabetic Acidosis. E. Stillman, D. D. Van Slyke, G. E. Cullen and R. Fitz, New York.—p. 405.

39. **Peptone Hypoglycemia.**—Dogs, not uniformly controlled as to diet, general condition, or time after eating, were injected intravenously with 0.3 to 0.5 gm. of Witte's peptone per kilogram of body weight. The blood sugar was determined before the injection and at intervals of two and four hours after the injection. In every case hypoglycemia developed. The average fall for thirteen dogs was 0.03 per cent. glucose or 34 to 38 per cent. of their original blood sugar.

41. **Protein Intake and Creatin Excretion.**—Experimental results are presented on four children and one infant in which it is shown that the amount of creatin found in the urine of children is directly dependent on the intake of protein, being high when large quantities of protein (creatin free) are ingested, decreasing and in some cases disappearing entirely when the child is fed a diet of an extremely low protein content. Creatinuria in normal children is therefore due to the relatively high protein intake which is the rule with practically all children; that it may also be due to the low saturation point of immature muscle is suggested by the small creatin content of the muscles of children and by the relatively low level of protein consumption at which appreciable quantities of creatin are excreted.

46. **Oxytocic Principle of Pituitary.**—Adams found that the constituent of pituitary solution which affects the isolated uterus is rapidly destroyed at 100 C. when the hydrogen-ion concentration of the solution is of the order of $N \times 10^{-5}$.

Oxygen seems not to be involved in the decomposition under the conditions of the experiment. The oxytocic principle becomes thermostable when the hydrogen-ion concentration is increased to the order of $N \times 10^{-3}$.

50. **Blood Plasma Bicarbonate.**—Reasons are discussed by Van Slyke and Cullen for basing both the definition of acidosis and the methods for its detection on the blood bicarbonate. Experiments are detailed showing both in vivo and in vitro the influence on the plasma bicarbonate of various factors, in particular of the shift of bases and acids between plasma and corpuscles under the influence of changing carbonic acid concentration. A simple technic has been developed by means of which the capacity of the plasma to combine with carbonic acid under definite tension is determined as a measure of the alkali in excess of acids other than carbonic. The plasma, from oxalated blood, drawn and centrifuged under definite conditions, is shaken at room temperature in a separatory funnel filled with alveolar air from the lungs of the operator, or with an artificial air mixture containing 5.5 per cent. of carbon dioxid. The carbon dioxid content of the plasma is then determined by the method described in the next paper. The results are calculated in terms of bicarbonate and are tabulated. The value determined appears to indicate not only the alkaline reserve of the blood, but also that of the entire body.

51. **Determination of Carbon Dioxid.**—A simple one piece apparatus is described by Van Slyke for determination of the carbon dioxid or carbonate content of water solutions. It has been designed especially for analysis of 1 c.c. samples of blood plasma, but is applicable to water solutions in general as well as to the determination of dissolved gases other than carbon dioxid. The entire analysis is performed at room temperature, requires about three minutes, and without especial precautions is capable of accuracy to within 1 per cent. of the amount determined. A micro-apparatus designed on a similar principle is described. With it the carbon dioxid content of 0.2 c.c. of plasma can be determined with an accuracy of one volume per cent.

Journal of Immunology, Baltimore

June, II, No. 4

56 Noninfluence of Injections of Pure Proteins on Proportions of Globulin and Albumin in Blood Serum. E. S. Schmidt and C. L. A. Schmidt, San Francisco.—p. 343.
57 Immunologic Studies in Typhus Exanthematicus. P. K. Olitsky, New York.—p. 363.
58 *Experiments with Possible Bearing on So-Called Nonspecific, Intravenous Vaccine Therapy. O. Teague and H. I. McWilliams, New York.—p. 375.
59 Spontaneous Agglutination in Typhoid and Paratyphoid Cultures and Its Bearing on Absorption of Agglutinins. O. Teague and H. I. McWilliams, New York.—p. 383.
60 Selection of Horses for Production of Diphtheria Antitoxin by Intrapalpebral Toxin Test. A. P. Hitchens and E. K. Tingley, Glenolden, Pa.—p. 395.
61 *Relation between Antigen and Antibody in Living Animal. R. Weil, New York.—p. 399.
62 Cutaneous Antibodies in Guinea-Pig. M. W. Cook and G. H. Smith, Glenolden, Pa.—p. 415.
63 Absorption of Antigen; Repetition of Work Reported by Doerr and Pick. G. H. Smith and M. W. Cook, Glenolden, Pa.—p. 421.
64 Antigenic Classification of Group IV Pneumococci. M. Olmstead, New York.—p. 425.
65 Vasomotor Depression in Canine Anaphylaxis. R. Weil, New York.—p. 429.

58. **Nonspecific, Intravenous Vaccine Therapy.**—The hypothesis has been suggested by Teague and McWilliams that the intravenous injection of vaccine brings about a transfer of bactericidal substances (complement, or bactericidal antibody, or both) from the blood to the tissue fluids or lymph and in this way increases resistance. According to this hypothesis the reaction should not be specific; *B. coli* vaccine, as well as typhoid vaccine should be able so to affect the blood capillaries as to allow the passage of these substances through their walls. Experiments recorded by the authors have demonstrated that the reaction is, in fact, nonspecific in this sense. The fact that rabbits are rendered more resistant to typhoid by a preliminary injection of *B. coli* vaccine as well as by typhoid vaccine and that typhoid patients are cured by crisis by both kinds of vaccine makes it seem all the more likely that the same phenomenon is concerned in both reactions. The authors believe that their hypothesis offers the best explanation, not only of the new treatment of typhoid, but also of those other instances of so-called nonspecific vaccine therapy mentioned above; the bactericidal antibodies in each instance are probably transferred from the blood, where they are present in excess, to the tissue fluid where they are urgently needed. It is probable that opsonins and other antibodies, and perhaps complement, are similarly transferred and play a part in destroying the infecting organism in the diseased tissues. The cure would be brought about then, after all, by means of specific antibodies and their ideas with regard to immunity reactions would not have to undergo a radical revision as has been predicted by some writers.

61. **Antigen and Antibody in Living Animal.**—With the earliest appearance of reactive antibody in the cells, the same material begins to be discernible in the serum, and so, coincident with the intracellular destruction of antigen, there goes an extracellular precipitation of the circulating antigen in the blood. It is almost certain that this circulating antibody is derived from the reacting cells. Thus, gradually, the response of the cells serves to eliminate all the foreign protein from the body, both that which the cells have taken up and that remaining in circulation. But, says Weil, it is essential to keep in mind the fact that it is the anchoring of the protein which stimulates the cells to react, and which therefore constitutes the first step in the elimination. The cases in which the cells fail to anchor the foreign protein, no antitoxin is produced, and for an indefinitely long period the foreign protein remains within the body.

In one respect in particular, the cellular response is of great physiologic importance. With it goes a marked interference with normal cellular activities, which in human beings takes the form known as serum sickness. There are fever, cutaneous eruptions, joint manifestations, albuminuria and other untoward effects. In animals, death may ensue. These phenomena indicate that the symptoms of the infectious diseases may depend in no small measure on the gradual destruction of the foreign protein of the disease by the cellular antibodies. At all events, it must be admitted that the symptomatology of serum sickness, caused by an absolutely nontoxic and innocuous foreign protein, such as horse serum, can in many respects not be differentiated from that of an acute infectious disease. This remarkable fact goes far to bring home the great importance of such processes as are involved in the reaction of the cell to foreign protein, and is essential to the comprehension of some of the most common phenomena of clinical medicine, as well as of cellular physiology in a general sense.

Journal of Infectious Diseases, Chicago

July, XXI, No. 1

66 *Bacteriology of Acute Epidemic Respiratory Infections Commonly Called Influenza. G. Mathers, Chicago.—p. 1.
67 Leptothrix Associated with Chronic Bronchopneumonia. G. F. Dick, Chicago.—p. 9.
68 *Intravenous Injection of Typhoid Vaccine. C. S. Kibler and L. F. McBride, Chicago.—p. 13.
69 *Agglutination in Typhus. G. Bachr, New York.—p. 21.
70 *Possibility of Typhoid Infection Through Vegetables. C. O. Melick, Chicago.—p. 28.
71 Voges-Proskauer and Correlated Reactions of Coli-Like Bacteria. M. Levine, J. C. Weldin and B. R. Johnson, Ames, Iowa.—p. 39.
72 Influence of Oxygen Tension on Morphologic Variations in B. Diphtheriae. W. B. Wherry, Cincinnati.—p. 47.
73 Ninhydrin Reaction in Examination of Cerebrospinal Fluid. N. Novick, New York.—p. 52.
74 Nature of Plague Proteotoxins. F. Eberson, China.—p. 56.
75 American Mortality Statistics and Mills-Reincke Phenomenon. E. B. Fink, Chicago.—p. 62.
76 Effect of Injection of Nonspecific Foreign Substances on Course of Experimental Rabies. W. H. Burmeister, Chicago.—p. 95.

66. **Acute Epidemic Respiratory Infection.**—In a bacteriologic study of material from sixty-one cases of acute respiratory infection the influenza bacillus was found by Mathers

in only one instance and then in small numbers. On the other hand, virulent hemolytic streptococci similar in cultural characteristics and virulence to the streptococcus commonly associated with epidemic sore throat and scarlet fever were found in the nose, throat, and pharynx in forty-six and in the blood in three cases of this epidemic disease. *Streptococcus viridans* and the pneumococcus were each found in thirty instances, these organisms in virulence and biologic characters closely resembling the organisms found in the normal mouth. The predominance in the discharges from the nose, throat, and pharynx of patients suffering from the epidemic respiratory infection of a virulent hemolytic streptococcus not usually found in the normal mouth, the absence of the influenza bacillus, and the character of the associated pathologic changes suggest that this disease was caused by a virulent hemolytic streptococcus.

68. **Intravenous Injection of Typhoid Vaccine.**—The immediate results of the intravenous injection of typhoid vaccine, such as chill, rise and fall of temperature, leukocytosis, and changes in the concentration of agglutinin and opsonin, usually in the direction of an increase, were the same in the normal man as in the typhoid patient, and the authors' results do not support the view that the reaction is essentially specific. Except so far as they show that leukocytosis is rather constant after the injection of vaccine, they do not appear to support any particular view advanced to explain the action of intravenous injection of foreign protein in infectious diseases. The number of cases observed (six) is too small to allow any conclusions as to the therapeutic effect of typhoid vaccine in typhoid, but the results obtained would seem to correspond fairly well with the results obtained in larger series.

69. **Agglutination in Typhus.**—All together, 271 agglutination tests were made by Baehr on the serum of 100 persons with typhus. In forty-six of the patients, from three to eight examinations were made at intervals during the illness and early convalescence. The rest were only examined on one or two occasions. Agglutinins were demonstrable in forty-three of the forty-six cases studied systematically, or in 93 per cent. No agglutinins were found in the serum of three typhus patients, examined four, five and six times, respectively, during the course of the disease, and early convalescence.

70. **Typhoid Infection Through Vegetables.**—Melick concludes that vegetables grown in soil fertilized with fresh typhoid excreta shortly before planting or during the growing season are likely to be contaminated at the time they reach the consumer. Vegetables so contaminated are not made safe by the ordinary methods used in the preparation of such foods for table use, and may, therefore, be a source of typhoid infection.

Journal of Urology, Baltimore

April, 1, No. 2

77 *Experimental Nephropathy in Dog. Lesions Produced by Injection of Bacillus Bronchisepticus into Renal Artery. M. C. Winternitz and W. C. Quinby, Baltimore.—p. 139.

78 *Case of Multiple Myelomas with Chronic Nephritis Showing Bence-Jones Protein in Urine and Blood Serum. V. C. Jacobson, Boston.—p. 167.

79 *Injuries to Pancreas Following Operations on Right Kidney. H. H. Young and J. A. C. Colston, Baltimore.—p. 179.

80 *Comparative Influence of Morphin and Total Opium Alkaloids on Renal Colic. D. I. Macht, Baltimore.—p. 201.

81 Growth of Bacillus Coli in Urine at Varying Hydrogen Ion Concentrations. A. T. Shohl and J. H. Janney, Baltimore.—p. 211.

82 Verumontanum, with Special Reference to Sinus Pocularis; Its Anatomy, Histology and Physiology. A. G. Rytina, Baltimore, p. 231.

77. **Experimental Nephropathy.**—The experiments made by Winternitz and Quinby showed that spontaneous renal lesions, similar even in detail to those found in the human kidney in the progressive, nonsuppurative types of nephritis may be experimentally produced in dogs by the injection of the bacillus bronchisepticus into the renal artery. The results of this injection vary, but the animals tend to group themselves as follows: 1. Those in which no demonstrable general infection occurs; the kidney, however, shows immediate acute inflammatory lesions which rapidly subside and result in focal scars associated with intermittent albuminuria and cylindruria. 2. Those that died acutely with a fulminating renal lesion and an acute general infection. 3. Those in which there was definite evidence of general infection as well as renal involvement. The first subsided while the kidney changes progressed, and led so rapidly to functional impairment that the organ was unable to maintain its efficiency after the other kidney had been removed.

78. **Multiple Myelomas with Chronic Nephritis.**—The case reported by Jacobson was one of multiple myelomas of the plasma cell, nongranular, nonoxydase type. It is said to be the first instance reported in which there was associated definite clinical evidence of advanced nephritis with retention of a large, measurable amount of the Bence-Jones protein in the circulating blood.

79. **Injuries to Pancreas.**—A few cases have been observed by Young and Colston in which extreme abdominal distention followed kidney operations. In one of them it was found necessary to perform an enterostomy for the relief of the obstruction, following which the patient made an uninterrupted recovery. The remaining cases of uncomplicated distention yielded rapidly to the usual simple methods. The two cases in which the pancreas had suffered injury are given in detail on account of their rarity and interest. In summary they are: Case 1. Renal calculus. Right nephrotomy. Bleeding from aberrant vessel, stopped by blind clamping and pressure. Postoperative intestinal obstruction. Enterostomy. Death. Necropsy: Pancreatitis, fat necrosis. Case 2. Right renal Calculus. Operation; kidney very adherent at upper pole; pyelotomy. Postoperative intestinal obstruction, requiring enterostomy. Development of glycosuria. ℞: Pancreatin. Slow convalescence and cure. Another case was an example of severe distention leading to intestinal obstruction which is not infrequently seen after rightsided renal operation. However, in this case there was no demonstrable injury to the pancreas either at the time of the enterostomy operation or in the subsequent postoperative course. Case 3. Nephrectomy for large hypernephroma. Difficult operation on account of hemorrhage. Postoperative nausea, vomiting and distention. Intestinal obstruction requiring enterostomy on fifth day. Recovery.

The authors point out that injury to the pancreas can best be avoided by an adequate incision for the exposure of the kidney and careful ligation of all structures divided in freeing the upper pole; and the probability of the presence of anomalous vessels must be kept in mind and care taken to ligate them securely. Injury to the pancreas should be suspected following operation on the right kidney in the presence of extreme abdominal distention and rapid prostration. Rapid enterostomy offers a chance of preserving life by relief of the intestinal obstruction but if the injury is extensive enough to cause widespread extravasation of pancreatic secretion the condition is hopeless. Traumatism to intestine by retractors, clamps or gauze packs may also cause intestinal distention or even obstruction. Care in hemostasis and good exposure without violent retraction and traumatism is of prime importance in renal surgery.

80. **Influence of Morphin and Total Opium Alkaloids on Renal Colic.**—Macht claims that morphin produces an increase in tonicity and in the rate of contractions of the ureter. Papaverin and narcotin produce a relaxation of the tonus of the ureter and an inhibition of its contractions. Opium and other combinations of total opium alkaloids contain enough papaverin and narcotin to overcome the spasmodic local effect of morphin, and are therefore to be preferred to morphin in case of ureteral colic.

Journal-Lancet, Minneapolis

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83 Getting Returns from Sanatorium Investments. A. T. Laird, Nopeming.—p. 404.

Journal of Abnormal Psychology, Boston

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84 Study of Anesthesia, Convulsions, Vomiting, Visual Constriction, Erythemia and Itching. E. J. Kempf, Washington, D. C.—p. 1.

85 Some Analyses in Psychopathology of Everyday Life. H. W. Frink, New York.—p. 25.
86 Mental Imagery of Stutterers. Examination of Certain Current Theories. J. M. Fletcher, New Orleans.—p. 34.
87 Stuttering Boy. K. Dunlap, Baltimore.—p. 44.
88 Deforming Influences of Home. H. W. Brown, White Plains, N. Y.—p. 49.
89 Meaning of Psychanalysis. T. Burrow, Baltimore.—p. 58.

Kansas Medical Society Journal, Topeka

June, XVII, No. 6

90 Recent Progress in Surgery of Bile Passages; Plea for More Thorough Operations. D. N. Eisendrath, Chicago.—p. 149.

Laryngoscope, St. Louis

May, XXVII, No. 5

91 Nonsurgical Treatment of Inflammation of Nasal Accessory Sinuses. W. A. Wells, Washington, D. C.—p. 397.
92 Plica Triangularis and Its Morphologic Variations. Causative Factor in Production of Foci of Infection and Irritation. F. G. Murphy, Mason City, Iowa.—p. 409.
93 Relation of Glands of Internal Secretion to Otolaryngology. J. C. Beck, Chicago.—p. 422.
94 Importance of Internal Secretions in Ear, Nose and Throat Affections with Special Reference to Hypophysis. H. L. Pollock, Chicago.—p. 430.
95 Campaign Voice. L. D. Alexander, Jr., New York.—p. 441.
96 Traumatic Deflections of Nasal Septum and Their Treatment. O. Orendorff, Canon City, Colo.—p. 445.
97 Frontal Sinusitis Probable Cause of Acute Nephritis. G. F. Keiper, Lafayette, Ind.—p. 449.
98 Case of Nasal Papilloma, Surgical Removal Followed by Roentgen Ray Treatment. C. E. Ide, Los Angeles.—p. 452.

Nebraska State Medical Journal, Norfolk

May, II, No. 5

99 New Health Department of Nebraska. E. W. Rowe, Lincoln.—p. 303.
100 Tuberculosis; Early Recognition. G. Reeder, Fremont.—p. 309.
101 Acute Miliary Tuberculosis. A. J. Baker, Grand Island.—p. 315.
102 Relation of Food to Nervous Disturbances in Infants and Children. J. C. Moore, Omaha.—p. 317.

New York Medical Journal

June 23, CV, No. 25

103 Constructive Suggestions Toward Control of Tuberculosis in Times of Peace and in Time of War. S. A. Knopf, New York.—p. 1181.
104 Birth Control and Physician. B. S. Talmey, New York.—p. 1185.
105 Duality of Voice. J. S. Greene, New York.—p. 1192.
106 Constructive Suggestions Toward Control of Syphilis, Gonorrhea, Pneumonia, Malaria, Typhoid and Typhus. I. S. Wile, New York.—p. 1195.
107 Constructive Suggestions Toward Control of Measles, Scarlet Fever, Diphtheria and Whooping Cough. S. J. Baker, New York.—p. 1198.
108 Sinus Thrombosis Following Fracture of Skull, with Subsequent Acute Mastoiditis and Erysipelas. W. W. Carter, New York.—p. 1201.
109 Nontuberculous Cases in Hospital for Advanced Consumptives. J. Kramer, New York.—p. 1202.
110 Fatalities in Athletic Games and Deaths of Athletes. R. E. Coughlin, New York.—p. 1204.

Ohio State Medical Journal, Columbus

July, XIV, No. 7

111 Local Anesthesia for Tonsillectomy. J. A. Thompson, Cincinnati.—p. 469.
112 Physician in Court. D. S. Gardner, Massillon.—p. 472.
113 *New Method for Short Circuiting Colon. W. Griess, Cincinnati.—p. 476.
114 Anesthesia and Analgesia in Obstetrics. H. Heffron, Metamora.—477.
115 Place of Individually Owned and Operated Hospital in Community. B. R. McClellan, Xenia.—p. 478.
116 *Treatment of Tuberculosis by Ether Anesthesia. W. E. Savage, Cincinnati.—p. 480.

113. **Method for Short Circuiting Colon.**—The technic employed by Griess is as follows: The ileum and sigmoid are divided at two given points. The ends are then anastomosed by the end-to-end or lateral method as may suit the taste of the operator. The open ends of the sidetracked intestinal tract are sutured to the abdominal wall in the line of the incision or at some convenient part. The ends stitched to the abdominal wall will atrophy into two mucous teats which will secrete a little mucus. The colon itself will atrophy and its removal, if necessary, will be found extremely easy. In fact, there is no indication for its removal except for malignant disease, for if the object for short circuiting has been stasis, the remaining colon can be flushed out and after a short time the amount of mucus it secretes will be insignificant. The danger from this operation is said to be no greater than any other intestinal anastomosis and it fulfils a want that a pure lateral or end to side anastomosis will not fulfil, for a damming back into the sidetracked colon will occur.

116. **Treatment of Tuberculosis.**—Ether, given by the closed cone method, Savage says, is a valuable therapeutic agent in the treatment of peritoneal, pulmonary and meningeal tuberculosis. Improvement is noticeable as soon as the patient recovers from the anesthetic. Ether is of greatest benefit when used in uncomplicated tuberculous peritonitis and early pulmonary tuberculosis. One anesthetic usually suffices. In advanced cases of pulmonary tuberculosis the distressing symptoms of high fever, cough, expectoration, night sweats, loss of sleep and appetite are very noticeably benefited for a period of from fifteen days to six months. In advanced cases continued improvement has been noticed, not infrequently, with repeated anesthetics. Ether cones can be made of a towel, heavy wrapping paper, and three safety pins. In the apex of the cone a pledget of absorbent cotton is placed. A few drops of ether are at first placed in the cone to allow the patient to become accustomed to the fumes. Ether is gradually increased until the stage of excitement is reached, then a liberal supply is added and the cone kept snugly against the face, reinforced with a towel to exclude as much oxygen as possible; in this way the patient can be kept under as long as one thinks necessary.

Pennsylvania Medical Journal, Athens

June, XX, No. 9

117 Workmen's Compensation Law of Pennsylvania from Physicians' Viewpoint. W. L. Estes, South Bethlehem.—p. 627.
118 Compensation for Industrial Diseases. F. L. Hoffman, Newark, N. J.—p. 634.
119 Carrel Method of Wound Sterilization. W. O. Sherman, Pittsburgh.—p. 643.
120 Treatment of Fractures of Long Bones from Viewpoint of Function. E. Martin, Philadelphia.—p. 658.
121 National Standards for First Aid. J. C. Bloodgood, Baltimore.—p. 666.

Public Health Journal, Toronto

June, VIII, No. 6

122 Poliomyelitis. H. W. Hill, London, Ont.—p. 139.
123 Clinical Studies of Infantile Paralysis. E. J. Durocher, Windsor, Ont.—p. 141.
124 Public Health in Average Town; Ways and Means of Conducting. C. A. Patterson, Forest, Ont.—p. 143.
125 Practical Points in Enforcement of Regulations and Difficulties of Medical Officer of Health. H. Ross, Clifford, Ont.—p. 149.
126 How Could Rural Municipality Employ Public Health Nurse? J. F. Hanly, Almonte.—p. 153.
127 Overcrowding—Why Is It Tolerated? T. Watson.—p. 157.

Southern Medical Journal, Birmingham

June, X, No. 6

128 Some Problems in Etiology of Poliomyelitis. W. H. Frost, Cincinnati.—p. 451.
129 Simplified Infant Feeding. G. K. Varden, Atlanta, Ga.—p. 457.
130 Phenomenon of Hypertension Reading. L. B. Newell, Charlotte, N. C.—p. 464.
131 Tuberculosis of Infants. M. E. Lapham, Highlands, N. C.—p. 465.
132 Work of U. S. Public Health Service with Reference to Malaria. R. C. Derivaux, Washington, D. C.—p. 472.
133 Prophylaxis in Mental Disease. W. C. Sandy, Middleton, Conn.—p. 478.
134 Chylous Cysts of Mesentery; Report of Case. H. R. Shands, Jackson, Miss.—p. 484.
135 New Growths of Clitoris. W. W. Battey, Jr., Augusta, Ga.—p. 486.
136 Radium Therapy. E. C. Samuel, New Orleans.—p. 490.
137 Gunshot Wounds of Chest Observed in Late Turko-Balkan War and in Present European War. E. L. Gilcreest, Dallas, Texas.—p. 496.
138 Diagnosis of Traumatic Neurosis. L. Casamajor, New York.—p. 501.
139 Fractures of Lower Extremity: Treatment. J. C. A. Gerster, New York.—p. 505.
140 End Results of One Hundred and Eleven Radical Mastoid Operations. J. A. Stucky, Lexington, Ky.—p. 511.
141 Technic of Tonsil Excision with Exhibition of Instruments. M. M. Cullom, Nashville, Tenn.—p. 512.
142 Advantageous Results of Tonsil Operation. J. G. Murphy, Wilmington, N. C.—p. 519.

143 Secondary and College Education in South in Relation to Medical Education. J. H. Kirkland, Nashville, Tenn.—p. 526.

Wisconsin Medical Journal, Milwaukee

June, XVI, No. 1

144 Physician; Past and Present. H. P. Greeley, Waukesha.—p. 1.
145 *Topographic Anatomy of Heart. C. R. Bardeen, Madison.—p. 6.
146 Regulation of Heart in Health and Disease. J. A. E. Eyster, Madison.—p. 8.
147 Some Practical Considerations in Chronic Heart Disease. A. J. Patek, Milwaukee.—p. 12.
148 Personal Hygiene for Soldiers. G. E. Seaman.—p. 22.
149 Duties of Medical Officers at Front. J. W. Frew.—p. 25.
150 Results of Examinations for Diagnosis of Gonorrhea. L. L. Gilman, Madison.—p. 27.

145. **Topographic Anatomy of Heart.**—From a study of a heart silhouette, silhouette of the heart either on a roentgenographic plate or on a fluoroscopic screen in various conditions in health and disease, Bardeen has gained new insight into what may be termed the living anatomy of the heart. He found that the heart of a person in the recumbent position is larger than that of the same person sitting up. The heart of a person in the sitting position is larger than that of one standing. The variation in the size of the silhouette from the recumbent to the standing position may be over 30 per cent. In an average of seven persons Bardeen found the increase from the recumbent to the sitting position to be 7.2 per cent., from the recumbent to the standing position 18.2 per cent. As a rule fat persons have hearts smaller in proportion to their weights than persons of normal weight, and women of a given size have hearts somewhat smaller than men of the same size. Their differences, however, are less marked than those mentioned above and are of relatively less interest to those not specialists in the diagnosis of cardiac disease. Valvular disease may produce changes in the shape of the heart which while most manifest in the Roentgen-ray silhouette may be determined by percussion. Aortic disease is marked by a bulging of the lower left side of the heart, mitral disease by a bulging of the upper left side, and, if marked, by a bulging of the lower right side. Incompetency of the tricuspid valve may cause a bulging of the upper right side.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 2, I, No. 2944

1 *British Surgery at Front. A. Bowlby and C. Wallace.—p. 705.
2 Penetrating Wounds of Chest at Casualty Clearing Stations. W. Herringham.—p. 721.
3 Administration of Anesthetics at Front. G. Marshall.—p. 722.
4 Color Changes Seen in Skin and Muscle in Gas Gangrene. C. Wallace.—p. 725.
5 *Method of Spread of Gas Gangrene into Living Muscle. J. W. McNee and J. S. Dunn.—p. 727.
6 *Successful Conservative Treatment of Early Gas Gangrene in Limbs by Resection of Infected Muscles. C. H. S. Frankau, H. Drummond and G. E. Neligan.—p. 729.

1. **British Surgery at Front.**—Bowlby and Wallace, in their summary of the present position, record the leading facts which experience has established, and describe the trend of surgical opinion and practice, more particularly in the treatment of abdominal wounds, head injuries, wounds of blood vessels, fractures and joint injuries. They point out the indispensability of the motor ambulance, around which one might safely say the whole surgical system from front to base has been organized. Motor transport of the wounded and the casualty clearing station together form the keystones of the system, and the saving of lives, limbs and suffering due to their development since the early months of the war has been immense. An important point made by the authors is that surgery at the front is a special branch of practice which all have to learn by direct experience, and a sound opinion on wound treatment comes to no one, however gifted, by the light of Nature. This seems to be specially true of the decision when and where to amputate. Among other things the war has abolished the old formal amputation dear to the teachers of operative surgery and examiners of former days. Another development in technic has been the early routine excision of damaged tissue, and the use of moist dressings containing antiseptics, such as neutral solution of chlorinated soda, which have been devised to meet the special conditions of wound infection at the front.

In abdominal surgery it was demonstrated beyond doubt that under the conditions of this war early evacuation from the front line and immediate operation gave the only hope of success. For some time past the rule has been to operate, unless there is some special reason to the contrary; not to await special indications, but to open the abdomen and make a rapid, methodical examination of the intestine, suturing rents in the intestine, and resecting only in cases in which this is inevitable. The modern practice—aided by a special service of cars for hurrying abdominal cases to the clearing station or small advanced operating center—has resulted in a lowering of the death-rate estimated at between 15 and 20 per cent., although the mortality from these wounds is still distressingly high.

In the surgery of joints, gratifying improvement has followed modern lines of treatment. In head surgery effort has been directed toward devising the best operation and standardizing a general line of treatment adaptable to all varieties of cranial wounds. It was found that head cases travel badly after operation, although, provided the pulse is slow, they travel well, as a rule, between injury and operation. Early operation and prolonged rest after it is, therefore, the ideal, and this has been attained to some extent, by the establishment of special hospitals neither too near nor too far from the line. With regard to fractures of the limbs, the most important generalization seems to be that no amount of skilled after-care can make up for improper early treatment. Thorough, deliberate operation is needed, and, as would be expected, the operating facilities of clearing stations, combined with the Roentgen-ray plants which have sprung up in connection with them, have brought about great improvement, while the almost universal use of the Thomas splint and its progeny is an important factor. In this article are detailed also the latest views on the causation and treatment of gas gangrene.

5. **Method of Spread of Gas Gangrene.**—The rapidity of spread of gas gangrene into living voluntary muscle is so remarkable as to require explanation by a different process from that which governs ordinary septic invasion of tissues. It is suggested by the authors that the facts are accounted for by the peculiar anatomic structure of muscular tissue. The sheaths enclosing the long individual fibers are so easily detachable as to form potential spaces into which toxic material can readily pass, causing necrosis of the fibers. The early selective invasion of single muscles is consistent with the above view.

6. **Gas Gangrene in Limbs Treated by Resection of Infected Muscles.**—In no case have the authors seen gas gangrene commencing as a subcutaneous infection; injured muscle is in all cases the initial focus, the appearance of crackling in the subcutaneous tissues being a secondary phenomenon, due to extravasation of gas from the infected muscles below. In view of this, it has been their aim to model treatment on the following lines as soon as the condition is diagnosed: To explore the primary focus with a view to attempting to arrest the infection in the muscle, or group of muscles, involved by resection of the infected areas. Such resection may involve a part or the whole of single muscles, or groups of muscles. Resection should be limited to cases in which the main vessel of the limb is intact, and should be replaced by amputation where the operation must be so extensive as to be likely to give a limb which would be of less value than an artificial limb. Extensive resections, however, may be performed regardless of the ultimate utility of the limb as a life saving operation, it having been quite clear in some of the cases recorded that an amputation could not have been carried out without very grave risk to life. Resection should extend until the muscle is reached which has the following characteristics: 1. The color is unchanged. 2. The contractility is normal. 3. A good blood supply is present, as indicated by free bleeding from the cut surface. Experience

has shown that even if such muscles are, as they may be, slightly infected, free drainage and an open wound will arrest further development of the condition.

Edinburgh Medical Journal

June, XVIII, No. 6

7 Infectious Diseases in Relation to Child Welfare. C. B. Ker.—p. 389.
8 Dermatology in Relation to Child Welfare. N. Walker.—p. 396.
9 Id. R. C. Low.—p. 401.
10 Administrative Institutions Necessary for Welfare of Children under School Age. L. Mackenzie.—p. 404.
11 Diseases of Eye in Children of and under School Age. J. V. Paterson and H. M. Traquair.—p. 415.
12 Diseases of Ear, Nose and Throat in Relation to Child Welfare. J. S. Fraser.—p. 422.
13 Child Welfare and Prevention of Dental Disease. J. H. Gibbs.—p. 433.
14 Medical Inspection and Supervision of Schoolchildren in Edinburgh. J. H. Meikle.—p. 442.
15 Legal Powers and Administrative Regulations. W. L. Mackenzie.—p. 446.

Lancet, London

June 2, I, No. 4892

16 Paratyphoid Infections. C. H. Miller.—p. 827.
17 *Leukocytes in Cases of Irritable Heart. G. Briscoe.—p. 832.
18 *Influence of Maternal Oral Sepsis on Fetus and Marasmic Children. E. S. Pierrepont.—p. 837.
19 *Vaginal Plug in Treatment of Antepartum Hemorrhage. E. H. Tweedy.—p. 840.
20 Case of Placenta Praevia and Twins. W. G. Reynolds and J. O. Thomson.—p. 841.
21 Case of Tetanus Treated by Intramuscular Injections of Antitoxin. G. H. V. Appleby.—p. 841.

17. **Leukocytes in Cases of Irritable Heart.**—All the patients investigated by Briscoe were soldiers admitted to the hospital suffering from breathlessness or palpitation on slight exertion, faintness, giddiness, precordial pain and general lassitude. Ninety-three counts were carried out on thirty-four patients and thirty-two counts on nine controls. The average total count of the patients was 12,100 cells per cubic centimeters (lowest 6,800, highest 23,800). The average of the controls was 7,400 per cubic centimeters (lowest 5,000, highest 10,040). The degree of leukocytosis in these patients appeared to be directly proportional to the amount of exercise taken before the count was made, other factors, such as food, being the same. Of thirty-eight counts made while the patient was in bed or after he had been lying on his bed for an hour, the average was 10,600 per cubic centimeters (lowest 6,800, highest 16,800). Of thirty-one counts on those patients walking about in the ordinary way, the average was 12,700 per cubic centimeters (lowest 7,100, highest 18,200). Of seventeen counts made immediately after a staircase exercise, the average was 15,000 per cubic centimeters (lowest 8,700, highest 23,800). In seven controls the average count after rest was 7,100 per cubic centimeters (lowest 5,700, highest 8,400); the average after a staircase exercise was 8,200 per cubic centimeters (lowest 6,200, highest 10,040). It appears, then, that in these cases, at absolute rest, there is a slight leukocytosis or no leukocytosis. While up and about there is a decided leukocytosis. In many, and especially in cases of long standing, there may be a relative and absolute lymphocytosis. The variability of the different kinds of leukocytes is greater (more than double) than in normal individuals. The response to muscular exercise is similar to that found in healthy subjects, but is exaggerated in its degree. This exaggerated response can be used as an objective sign in diagnosis. The degree of leukocytosis and of variability in percentages after exercise is proportionate to the severity of the symptoms.

18. **Influence of Maternal Oral Sepsis on Fetus and Marasmic Children.**—Observations made by Pierrepont on some 500 cases show that the toxins from the maternal oral sepsis have a very strong influence in a large number of cases on the vitality of the rapidly growing fetus, so that the child is handicapped from before birth with a lowered vitality, and therefore the marasmic condition is antenatal in its inception. Prematurity of birth and miscarriages, in which no other cause can be discovered, are brought about by the toxic state of the mother, induced by the septic condition of her mouth. The diminution in the quantity, or alteration in the quality, of the mother's milk, where no other cause can be ascertained, is due to the selective affinity of certain toxins for certain secretory cells of the mammae, and in cases in which no such diminution or alteration can be demonstrated, then the toxins, and in some cases micro-organisms themselves, are in the milk. In the toxemias of pregnancy and the puerperium the high pressure at which the emunctory organs are working is probably adversely influenced by the toxic state produced by the mouth, and this is the deciding factor in many cases that just brings the balance down on the wrong side and results in eclampsia or the other toxemic conditions.

19. **Vaginal Plug in Antepartum Hemorrhage.**—To plug efficiently, Tweedy says, the left hand should be passed into the vagina, the palmar surface directed toward the hollow of the sacrum, while the finger tips lie behind the cervix. Small pieces of cottonwool, squeezed out of dilute compound solution of cresol and each the size of the thumb knuckle, are then taken and inserted by means of the right hand round the cervix. The fingers of the left hand are kept busy squeezing the pellets into a compact mass and forcing the spaces between them to permit the insertion of still another plug. This process is continued in a systematic manner from above downward till the vulva is reached and the vagina can hold no more. A T-bandage is applied to keep the plug in position, and an abdominal binder is fastened tightly from above downward to press the side walls of the uterus against the vaginal dam, and thus completes the operation. A plug so applied will cause immediate cessation of hemorrhage, and when it is removed after the lapse of hours so much blood only will be found as can be accounted for by the flow that took place during the operation.

Medical Journal of Australia, Sydney

May 12, I, No. 19

22 Personal Experiences and Clinical Observations with third Australian General Hospital, Lemnos and Egypt. H. J. Stewart.—p. 393.
23 Surgery of Ruptured Bladder. C. E. Todd.—p. 399.
24 Case of Cesarean Section under Rectal Anesthesia. A. E. Panting.—p. 399.

Practitioner, London

June, XCVIII, No. 6

25 Rubella or German Measles. C. R. Box.—p. 501.
26 *Surgeon and Spleen; Eight Cases of Splenectomy. G. G. Turner.—p. 511.
27 Recent Work on Urinary Surgery. J. W. T. Walker.—p. 528.
28 Recent Work on Diseases of Heart. C. W. Chapman.—p. 543.
29 Retrospect of Otology, 1916. M. Yearsley.—p. 557.
30 Surgery of Fractures. E. M. Corner.—p. 562.
31 Treatment of Neuralgia and Neuritis by Ionization and Diathermy. J. McGinn.—p. 565.
32 New Method (Forcible Passive Motion) for Treatment of Immobile or Stiff Shoulder Joints. W. J. Smyth.—p. 575.
33 *Case of Septic Pneumonia in Puerperium. S. Sheill.—p. 577.
34 *Treatment of Bronchopneumonia in Children. J. E. Measham.—p. 581.

26. **Splenectomy.**—In two of the cases reported by Turner splenectomy was performed for injury, and both patients died; in six cases the spleen was removed for disease and these six patients recovered and were known to be alive and well months or years afterward. The types of disease for which the operation was performed were: wandering spleen; wandering spleen with twisted pedicle; splenic anemia; splenic anemia (?) of infants; splenic anemia with recurring jaundice; Banti's disease. Turner warns that splenectomy must always be looked on with the greatest respect. A wandering spleen, with a long pedicle, allowing it to be brought out of the abdomen, is easily removed; but a spleen that has never left its secluded position, and is perhaps surrounded with vascular adhesions, is a much more difficult matter with which to deal, and one that may tax the resource of the operator very sorely. In the immediate after-history of these cases, Turner draws attention to the frequent occurrence of a little leftsided basal pleurisy. This has been present in nearly all his patients, and has come on about the fourth day. It soon clears up, and has not given rise to more than temporary inconvenience. Turner also calls attention to the fact that some condition in which the spleen is

enlarged may account for otherwise obscure hemorrhage, whether from the gastro-intestinal tract or the urinary system. The presence of some such disease may be masked, until perhaps severe postoperative hemorrhage prompts a systematic search for its cause. A routine examination of the blood ought to be made in all cases before operation.

33. **Fatal Septic Pneumonia in Puerperium.**—In Scheill's case there was a perineal tear requiring two sutures of silkworm gut, and these were removed on the seventh day, good union resulting. The patient got up on the ninth day feeling very well except for a tender spot on the right breast. The same evening her temperature rose to 102 F., the first rise of temperature during her puerperium. Sheill kept her in bed and ordered antiseptic wet dressings, while the inflamed spot increased in size toward the nipple. On the eleventh day, while applying suction to the whole breast by a Bier's apparatus, 1 or 2 drops of pus were drawn from a milk duct. The next day Sheill opened the breast under nitrous oxid anesthesia, and evacuated a small amount of pus and altered milk; the incision was explored digitally to make certain that no pus pockets remained unbroken. Her temperature did not fall to normal after the operation, but instead rose in two days to 104 F., although the breast was doing very well, except that the edema did not subside. Suspicious of her lungs, Sheill made an examination of them, and found well marked patchy signs of pneumonia. A few hours later, the diagnosis of "septic pneumonia" was confirmed. Six days after the opening of the abscess, and the eighteenth day of her puerperium, she died of acute septic double pneumonia.

34. **Treatment of Bronchopneumonia in Children.**—The method of treatment which Measham has adopted in seventeen cases is as follows: The child's chest is enveloped in a light Gamgee jacket, and over this a pair of woolen combinations are worn. The bed is placed in a part of the room free from draughts, and not more than the usual amount of bedclothes is used. A fire is kept constantly burning, and the window always open. The child is encouraged to take frequent sips of cold water. No medicines are given by the mouth, but a subcutaneous injection of quinin hydrochlorid is given morning and evening. A solution is prepared in which 1 grain of quinin salt is dissolved in 10 minims of water, and the dosage is as follows: For a child under 6 months, 5 minims; for a child under 1 year, 10 minims; for a child under 2 years, 15 minims; for a child under 2 years, 20 minims. In a series of seventeen cases there were two deaths, one of which was due to Bright's disease, the other to bronchopneumonia. The fatal case was not seen until the seventh day, and had had its chances of recovery lost by improper treatment.

Archives des Maladies du Cœur, etc., Paris

April, X, No. 4, pp. 145-208

35 Case of Aneurysm of Left Auricle as Explaining Mechanism of Pulsus Bigeminus. R. Lutembacher.—p. 145.
36 *Disturbances in the Circulation Accompanying Traumatic Reflex Paralysis or Contracture. J. Heitz.—p. 161.
37 Preparation of Strophanthus Gratus—Ouabain—in Treatment of Cardiac Insufficiency. H. Vaquez and R. Lutembacher.—p. 197.

36. **Reflex Paralysis or Contracture.**—Heitz refers in particular to the disturbances in the circulation accompanying the paralysis or contracture following transfixion of a limb by a projectile, or a severe contusion. The absence of the reaction of degeneration and the existence of symptoms, especially vasomotor, which cannot be reproduced by volition, thus excluding hysteria, are special features of these cases, and sustain the assumption that the paralysis or contracture is of reflex origin. Babinski and Froment have recently published a monograph on the subject, and Heitz reproduces five of their most typical illustrations and gives five tables showing the modifications in the circulation in the part involved. The local temperature is generally below normal or transiently above, and the limb is redder or bluer than normal, and there may be local hyperhidrosis. The topography of these vasomotor disturbances, their fluctuations, especially under the influence of the external temperature, their possible extension to the sound mate and their analogy with those observed with certain central lesions—all point to some reflex excitation of the bulbomedullary centers and the centers in the ganglia of the sympathetic. The logical treatment is to act on the muscular trouble by way of the vasomotors, seeking to elicit and maintain intense vasodilatation. This can be realized with hot baths, superheated air or electric light baths or diathermy, supplemented by massage, local mobilization and reeducation. Psychotherapy may be needed to eliminate any associated manifestations of hysteria. Excision of hampering cicatricial tissue is useful. Periarterial sympathectomy gives good results by the vasodilatation which it induces at first. In two or three weeks as the effect begins to subside, it can be revived by keeping the part extra warm. A bath of paraffin melted at 60 C. has proved excellent for this. The paraffin in contact with the skin solidifies, forming a protecting cover, so that the heat can be tolerated. After thirty or forty minutes the member with its adherent paraffin is wrapped in cotton.

Archives des Maladies de l'Appareil Digestif, etc., Paris

May, IX, No. 4, pp. 169-228

38 *Palpation of Pylorus Region. A. Mathieu.—p. 169.
39 *Roentgen Diagnosis of Cancer of the Large Intestine. R. Bensaude and G. Guénaux.—p. 179. Concluded.
40 Lymphatic Leukemia with Intestinal Symptoms. A. F. Hurst (London).—p. 221.

38. **Palpation of Pylorus Region.**—Mathieu has been studying for years the findings when the fingers are drawn perpendicularly over the colon and over a large cord occasionally discovered in the epigastrium. Roentgenoscopy has revealed this cord to be the antrum of the pylorus. It may be tender in patients who have had symptoms suggesting an ulcer in the stomach or duodenum, or when there is much gastroptosis. The indurated pylorus is usually hidden behind the liver, but it sometimes can be palpated at the close of inspiration as the subject stands. When the stomach is very long, the pylorus may lie to the left of the median line, but when there is much dilatation it is usually to the right. In five cases in which the pylorus lay to the left of the median line a laparotomy showed an ulcer close to the pylorus. The prepyloric cord was found tender in a number of persons free from any indications of ulceration at the time or before, and they have never developed such during the years since. Is it possible that irritation of the celiac or solar plexus, augmented by gastroptosis, is sufficient alone to induce the painful prepyloric cord? The tender contracted prepyloric cord might be the first sign of cancer, but he has never encountered a case of the kind although he has long been seeking for one. Induration of the pylorus differs from the typical prepyloric cord in that it does not appear and disappear but is fixed, and is usually accompanied by signs of retention and stasis in the stomach. When the induration is due to ulcer or cancer, the pylorus may be found in the left of the epigastric region. It may be fixed and immovable or it may slide down to the right when the stomach is full, returning to its position on the left as the stomach is emptied.

39. **Roentgen Diagnosis of Cancer of the Large Intestine.**—The conclusions of this long analysis of thirty cases are that the Roentgen rays may locate the lesion but that they are unable to specify its nature. Gaps in the shadow merely indicate circumscribed induration of the wall of the bowel; this may be due to ileocecal tuberculosis or ulcerative colitis as well as to cancer. Bensaude and Guénaux have noticed, however, that with the latter the shadow may spread out in the shape of the flame of a candle. They have never seen this except with cancer verified by operation (transverse colon). Another typical finding with cancer is when the shadow narrows to a small bridge between two broad shadows, looking as if a chunk had been gouged out on each side. The shadows cast by overlapping loops may hide a typical gap or narrowing in the shadow; this is particularly liable with the sigmoid flexure. They comment on other difficulties with radiologic exploration of the large intestine, but add that it may give valuable information in regard to the functioning of an anastomosis, warning of recurrence and demonstrating postoperative adhesions and the advisability of further intervention. In four of the thirty cases on which the article is based, the cancer was discovered in such an

early stage that its eradication was possible. A shadow of the rectum, dotted with light spots, was obtained in a case of polyposis of the rectum.

Bulletin de l'Académie de Médecine, Paris

May 15, LXXVII, No. 20, pp. 599-653

41 *The Depopulation of France. C. Richet and others.—p. 604.
42 *Quininized Serum in Treatment of Malaria. G. Hayem.—p. 635.
43 Extraction of Projectiles from Posterior Aspect of the Heart. R. Le Fort.—p. 645.
44 *Importance of Vitality of First Teeth for Physiologic Dentition. (Resorption radiculaire des dents de lait.) Luciani.—p. 647.
45 Hair Ball in Stomach of Girl of Four. A. Broca.—p. 650.

41. **The Depopulation of France.**—This committee report presents the present status of the outlook for the natality of France, and urges the adoption of resolutions prohibiting birth-control propaganda, and proposes taxation of the childless to provide pensions for families with children, with stricter enforcement of the laws against induced abortion. The discussion is to be continued.

42. **Treatment of Malaria.**—Hayem gives the history of intravenous medication. It seems to have been suggested first in Scotland in 1832. It was first applied in treatment of cholera, in 1855, and popularized by Baccelli in 1890. He warns that men returning from Macedonia or elsewhere with malaria should not be sent to localities where it is known that anopheles abound. Careful selection of the places for their convalescence is important to refrain from founding new foci of infection.

44. **Absorption of the Roots of the First Teeth.**—In examining large numbers of "milk teeth," Luciani noticed that the normal absorption of the roots occurred completely only when the pulp of the tooth was in normal condition. The physiologic integrity of the tooth is indispensable, he declares, in preparation for the normal process of second dentition. All his evidence proclaims the importance of preserving the vitality of the pulp of the first teeth until they are ready to drop off from absorption of their roots.

Journal de Chirurgie, Paris

XIV, No. 1, pp. 1-112

46 *Treatment of Persisting Fistula with War Wounds of Bones. C. Dujarier and A. Desjardins.—p. 1.
47 Apparatus for Immobilization of Compound Fracture of the Leg. R. Bonneau.—p. 12.

46. **Persisting Fistulas with Osteomyelitis from War Wounds.**—Dujarier and Desjardins advocate a special center to which these interminable fistula cases can be sent for specialist treatment. Their success with such cases has practically realized a center of the kind, as they report 80 per cent. cured by their operative measures in sixty-nine cases. The interval between the war wound and their intervention was from ten to twenty-one months in most of the cases and in none was less than four months. The cure after their intervention was complete in from three weeks to six months, averaging from two to four months. In the few cases of failure some cause was discovered later in nearly every instance, a scrap of cloth, a sequester or an overlooked focus of osteitis.

The abstract department of this *Journal de Chirurgie* fills eighty-eight pages, and illustrations accompany many of the summaries. The indexing of articles interesting the surgeon in international literature fills an additional thirty-six pages.

Journal de Médecine de Bordeaux

May, LXXXVIII, No. 6, pp. 101-120

48 Heliotherapy at Seashore Sanatorium in Southern France. (La Fondation Wallerstein.) C. Lasserre.—p. 103.
49 *Differential Diagnosis of Purulent Pleurisy and Abscess in the Liver. L. Moreau.—p. 109.
50 Localization of Projectiles. Bazozzi.—p. 113.
51 Zinc Dressing in Ambulant Treatment of Leg Ulcers. Charron.—p. 115.

49. **Differential Diagnosis of Pleurisy and Liver Abscess.**—Moreau describes a case in which the symptoms were ascribed to an assumed abscess in the liver, but they persisted after the operation on the liver. Necropsy revealed that the man had succumbed to a purulent pleurisy which had burrowed downward and simulated a purulent process in the liver. The symptoms of the two are practically identical, except that the bulging of the wall is lower with the liver trouble. The area of dulness is dome shaped with the latter, and more of a parabola outline with the pleurisy, unless congestion of the lung modifies the outline. The urine may contain more urates in pleurisy while they are much reduced with inflammation of the liver. Puncture is the most reliable differentiating measure, but instructive findings have been obtained with the deviation of complement test, applied with an antigen made from pus from the liver. A positive reaction has been obtained in several cases of liver abscess while the findings were constantly negative with simple amebic dysentery. The pus with purulent pleurisy does not yield an active antigen. Roentgenoscopy is also instructive.

Journal de Radiologie et d'Electrologie, Paris

March-April, III, No. 8, pp. 497-544

52 Radiologic Differential Diagnosis of Lesions in Lower Duodenum. J. T. Case (Battle Creek).—p. 497.
53 *Radiography of the Skull and Its Interpretation. C. Villandre.—p. 507.
54 *Rational Treatment of Cancer. T. Nogier.—p. 515.
55 Intensive Reeducation in Treatment of Phenomena of Hysteria. L. Delherm.—p. 531.
56 Radioscopic Determination of Depth of Projectiles in the Tissues. P. Aimé.—p. 533.

53. **Radiography of the Skull.**—Villandre has been studying on prepared skulls or parts of skulls the solution of certain problems raised during interpretation of numerous radiograms of skull wounds. The brain fits exactly into the skull, and knowledge of the skeletal points throws light on the conformation of the brain and its various parts. He took radiograms of the brains with lead threads placed to outline the corpus callosum, the ventricles, etc. A composite outline picture thus obtained is placed on the radiographic plate. By this means the shadow cast by the projectile fits into the proper region of the skull.

54. **Radiotherapy plus Operation in Treatment of Cancer.**—Nogier says he has been appalled at the histologic findings of cancer cells scattered through the adjoining tissues after apparently complete excision of cancers. Particularly in the breast, improved technic has revealed cells sown through the tissue far back of the primary tumor. They are not seen nor felt, and lie latent till after the operation. This arouses them, and we have recurrence of the cancer. For this and other reasons he advocates broad and intensive radiotherapy before the operation, preoperative instead of postoperative Roentgen or radium exposures. This he insists will prove successful beyond anything yet realized to date. Working with Regaud, he has conclusively demonstrated, he reiterates, that it is possible to give enormous doses of filtered Roentgen rays, leaving the skin intact. They expose the cancer first, then the adjoining regions, and especially the lymph glands which are ordinarily invaded. The operation should be as early as possible, removing all the microscopically evident malignant tissue. The scattered cancer cells lose all power for reproduction under the exposures, and if any embolism occurs during the following operation the embolus is sterile and metastasis is not entailed. The cells in the depths having lost their power of reproduction, die off sooner or later and are absorbed. This absorption of cancer cells serves as an immunizing process. All the evidence therefore, he concludes, is overwhelmingly in favor of radiotherapy followed by excision as the logical treatment for cancer.

Paris Médical

May 19, VII, No. 20, pp. 405-420

57 *Treatment of Abdominal Wounds at Advanced Posts. A. Schwartz.—p. 406.
58 *Campaign Diarrhea. A. Hanns.—p. 408.
59 Dangers of Intravenous Injections by the Inexperienced. (Escarre du pli du coude par injection arsenicale concentrée.) G. Milian.—p. 412.
60 Apparatus to Record Excursions of the Knee. (Nouveau goniomètre médical.) L. Alquier.—p. 413.
61 Volumetric Dosage of Sulphates. Vansteenberghe and L. Bauzil.—p. 414.
62 Tuberculous Origin of Nodular Erythema. R. A. Gutmann.—p. 416.

57. **Abdominal War Wounds.**—Schwartz states that the present 30 or 40 per cent. recoveries after laparotomy for abdominal wounds is a marvellous proportion when we consider the extreme rarity of a spontaneous cure of such wounds with lesions of the viscera, especially of the gastro-intestinal canal.

58. **Campaign Diarrhea.**—When entire regiments are taken with diarrhea for a few days, without special characteristics, Hanns thinks that the food is to be incriminated. The exercise and out-of-door life keep the men hungry and they overeat. Then some chilling at night proves the last straw. The reason why the diarrhea develops in epidemic form is because the opportunities for overeating occur to all alike, ripening of fruits, etc. There were never any complications in the hundreds of cases he has encountered.

Presse Médicale, Paris

May 3, XXV, No. 25, pp. 249-264

63 *Significance of Uremia in Heart Disease. (L'azotémie chez les cardiaques.) O. Josué and M. Parturier.—p. 249.
64 The Question of Time in War Surgery. H. Lorin.—p. 251.
65 Radium in Treatment of Sequels of War Wounds. P. Degrais and A. Bellot.—p. 253.
66 Current Tests for Blood Coagulability. L. Binet.—p. 255.

May 10, No. 26, pp. 265-272

67 The Life Work of Louis Landouzy. M. Letulle.—p. 265.
68 Malaria from the Therapeutic Standpoint. R. A. Gutmann.—p. 267.

63. **Uremia in Heart Disease.**—Josué and Parturier report experiences which confirm that azotemia may be observed in heart disease when the kidneys are still intact but are secreting abnormally small amounts of urine. They insist that, with oliguria, Ambard's constant is not a reliable criterion of the functional capacity of the kidneys. Even when the kidneys are slightly pathologic, relative oliguria may falsify the findings. Oliguria without azotemia may be observed when there is asystoly with considerable reduction in the urea-producing functioning of the liver. When diuresis sets in, the urea content of the blood drops still lower. Then if the Ambard constant is normal, this denotes that the urea-excreting function of the kidneys is intact, but if the constant is above normal, this denotes that the kidneys are impaired. Reduction of the urea content of the blood shows that the liver is impaired. Uremia due to oliguria may occur in various morbid states, and persons with heart disease are peculiarly predisposed to it, the oliguria itself being the direct consequence of the weakness of the heart muscle. Hence a high urea content in the blood does not contraindicate digitalis in adequate doses. With asystoly it is imperative to secure a more copious flow of urine.

Progrès Médical, Paris

May 19, XXXII, No. 20, pp. 163-170

69 *Experimental Research on Food Value of Cornmeal. (A propos du pain de guerre.) E. Weill and G. Mouriquand.—p. 163.
70 War Wounds of the Eyeball and Their Treatment. M. Bourdier. —p. 166. Continuation.

69. **Cornmeal and Its Food Value.**—The recent experimental research on pigeons here described confirms the assumption that removal of hulls deprives grains of substances of vital importance. Pigeons fed on bolted cornmeal (*maïs décortiqué*) developed paraplegia of the beriberi type with profound dystrophy of the skin, the feathers dropping out in the course of a few days. The paraplegia developed in thirteen, ten or five days of feeding with fine cornmeal, such as is generally used on the table. The dystrophy of the skin was also marked in rabbits and cats fed on vegetables or meats sterilized at 120 C. (248 F.). They lost their fur, as also rabbits fed exclusively on fine white bread. The research reported, on the other hand, confirms the high and satisfactory food value of whole-grain cornmeal. Pigeons kept 240 days on this alone thrived in every way. None of the pigeons fed with other grains seemed as vigorous as those on the whole-grain cornmeal. This was proportionately true also of the pigeons and controls kept on inadequate quantities of cornmeal.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 19, XLVII, No. 20, pp. 625-656

71 Metal-Albumin Preparation for Diagnosis of Pregnancy. K. Kottmann.—p. 625.
72 *Index for Coagulating Property of the Blood. (Methode der Bestimmung der Gerinnungsvalenz des Blutes.) A. Fonio and S. Schulsinger.—p. 639.

72. **Index of Coagulating Power of the Blood.**—Fonio and Schulsinger relate that when blood contains some substance which impedes its coagulation, then addition of another coagulation-impeding substance will naturally check coagulation still further. The amount of the second substance required to arrest coagulation completely can thus serve as an index of the coagulation value of the blood. They selected magnesium sulphate for the test substance. They fill a set of tubes with equal amounts of solutions of the magnesium sulphate of varying concentration, and add to each the same quantity of blood. After twenty-four hours, the tube in which complete coagulation first occurs is the index of the coagulation value. The set of tubes must be kept under sheets of moist filter paper with a glass laid over them. He calls the set of tubes for the purpose the Coagulovimeter. The tubes contain the reagent in concentrations of 0.8, 0.9, 1, 1.2, 1.4, 1.6, 1.8, 2, 2.5, 3, 3.5 and 4 per cent., and 10 drops of blood are added to each, tilting the stand until the contents of the tubes are well mixed.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 19, XXXVIII, No. 31, pp. 481-496

75 *Mercury Oxycyanid in Abortive Treatment of Gonorrhea. S.

April 22, No. 32, pp. 497-512

74 The Clinical Importance of the Organic Soil. E. Maragliano.—p. 497.
75 *Mercury Oxycyanid in Abortive Treatment of Gonorrhea. S. Colombino.—p. 499.

75. **Mercury Oxycyanid in Abortive Treatment of Gonorrhea.**—Colombino has discarded silver nitrate in abortive treatment of gonorrhea as it is irritating to the urethral mucosa. Potassium permanganate also is of little use, he thinks, in the early stages, although valuable in the second or third week. Mercury oxycyanid, on the other hand, is effectual and nonirritating, as he has demonstrated in over 100 cases. He irrigates the urethra with a tepid one per thousand solution the first day, then repeats the rinsing with a 0.5 per cent. solution morning and evening thereafter for two days, then once a day. The cure is usually complete in nine or ten days; the gonococci generally disappear by the third day. This method is indicated especially when the gonococci are restricted to the anterior urethra and not more than forty-eight hours have elapsed since the patient noted the first symptoms. Repose is good but not indispensable with this drug, but excitement, stimulants and heavy work should be avoided.

Policlinico, Rome

May 20, XXIV, No. 21, pp. 669-696

76 *War Wounds which Predispose to Gangrene on account of Injury of Vessels. G. Baggio.—p. 669.
77 *Hygiene and Prophylaxis of Cholera, Typhoid and Typhus among the Troops. A. Capogrossi.—p. 672.
78 Treatment of Malaria in the Troops. N. Pende.—p. 679.

May 27, No. 22, pp. 697-724

79 *Factitious Affections. (Le autolesioni nella vita militare.) A. Ascarelli.—p. 697; (L'ittero procurato da ingestione di acido picrico.) G. Masnata.—p. 701; P. Zannelli.—p. 707; (Diagnosi urologica degli itteri da ingestione di acido picrico.) O. Paleani.—p. 711; (Diatesi emorragica e cellulo-dermite-autocontusiva.) M. Nissim.—p. 712; (Dermatite da causa irritante esterna.) M. Caruccio.—p. 716; P. Sabella.—p. 717.

76. **Wounds Predisposing to Gangrene.**—Baggio calls attention to the war wounds of the thigh in which the injury of vessels predisposes to septic gangrene although the vascular injuries may be so slight that they may be overlooked by the surgeon. The tissues may be able to defend themselves as long as the circulation keeps active. He has seen gas gangrene develop after a tourniquet had been applied to arrest secondary hemorrhage, a week or more after the wound. He warns that wounds of the anterior-interior aspect of the thigh are particularly liable to develop gangrene, and

that the trunk vessels should be minutely examined, even when at first they do not seem to be injured. This class of wounds in particular require thorough surgical clearing out at the earliest possible moment.

77. **Prophylaxis of Camp Epidemics.**—Capogrossi emphasized among other points the advantages of making vaccines from the special germs prevailing at the spot at the time. He also warns of the special dangers when an enemy trench has been taken. The dead must be buried at once and everything else burned. This is particularly imperative where cholera and typhus are liable to be found, and no soldiers should be allowed to put on any garments, etc., from the enemy corpses or from prisoners. The sick and wounded should be isolated, as there may be carriers among them. Sanarelli suggested that the cholera vibrio may enter through the tonsil, and that it induces cholera on reaching the intestines only when other germs already installed there have reduced the resisting powers. In the discussion that followed, Rivalta reported experiences showing that when latent malaria flares up under the influence of a wound, the fever curve is liable to be a continuous high remittent fever, with nothing characteristic of malaria, but suggesting local complications. He described some typical cases after skull wounds.

79. **Factitious Affections.**—This entire number of the *Policlinico* is devoted to communications on experiences with induced or simulated affections in soldiers and laboring men. They are discussed from various standpoints, including some experiences with control administration of picric acid, and description of tests for it in the urine, blood and stools. The responsibility of the troop physician in detecting or mistakenly denouncing a simulated affection is emphasized. Early in 1914 eight French soldiers were accused by the army surgeon of voluntary mutilation, and two were shot. The others were held under observation and enemy projectiles were found in the lesions. The causes of error in the matter of factitious affections, real or suspected, are numerous and complex.

Riforma Medica, Naples

May 12, XXXIII, No. 19, pp. 507-532

80 Traumatic Pseudo-Arthritis of the Knee. A. Mori.—p. 507. Continuation.
81 Present Status of Treatment of Infection in War Wounds. R. Mosti.—p. 513.
82 Severe Hysteric Contracture Cured by Bilateral Ovariectomy. N. Federici.—p. 519.
83 Present Status of Treatment of Cerebrospinal Meningitis. A. Montefusco.—p. 528.

Cronica Medica, Lima, Peru

May, XXXIV, No. 647, pp. 149-188

84 *Traumatic Nephritis. M. Castañeda.—p. 149.
85 High Alcoholic Content of the Peruvian Beverage, Chicha. N. E. Cavassa.—p. 157.
86 Liver Abscess with Vomica. E. Odriozola.—p. 160.

84. **Traumatic Nephritis.**—Castañeda reports two cases of traumatic nephritis, and reviews the literature on the subject. His two patients were young women who had been kicked in the abdomen by their husbands and trampled. In the first, the acute bilateral nephritis with edema by the forty-eighth hour soon subsided to a clinical cure in two months. In the second case the urine contained much blood from the first, and urination was not painful as in the first case. By the end of the month there was no blood in the urine but numbers of tube casts and much albumin were found in the urine from the right kidney. On reexamination ten months later, the urine showed unmistakable evidence of chronic nephritis. In both his cases there was nothing in the antecedents except the trauma to explain the nephritis, as also in a number of similar cases of acute or subacute traumatic nephritis on record.

Revista de la Asociacion Medica Argentina, Buenos Aires

April, XXVI, No. 149, pp. 279-418

87 *Medical Tuberculosis. G. A. Alfaro.—p. 279.
88 *Case of Pulmonary Syphilis. M. R. Castex and R. Denis.—p. 303.
89 *Oxid of Antimony in Treatment of American Leishmaniosis. E. Escomel.—p. 316.
90 Fundamental Principles of Organotherapy. B. A. Houssay.—p. 325.
91 *Salivary Fistulas. J. M. Jorge.—p. 338.
92 *History of Bubonic Plague. A. M. del Pont.—p. 373. Continuation.
93 *Primary Sarcoma of the Stomach. A. J. Medina and A. R. Egaña.—p. 399.
94 Soap and Petrolatum in Surgery. T. Varsi.—p. 411.

87. **Medical Tuberculosis.**—Alfaro refers to tuberculosis localized in the lung, pleura or mediastinum. With tuberculous glandular lesions in children there may be merely repeated attacks of croup and spasmodic coughing, or attacks suggesting asthma or a remittent or intermittent fever. After the child is a year old, the affection may be amenable to treatment by change to a mountain climate, heliotherapy, iodin, arsenic and tuberculin. The latter in particular has given him good results when there was little or no fever. Tuberculous glandular lesions are the most readily curable of all forms of tuberculosis in children over 2. In respect to pulmonary tuberculosis, he says that the present status is of less moment for the prognosis, comparatively speaking, than determination as to whether the disease is progressing or not. Hence he classifies pulmonary tuberculosis as acute, subacute and chronic, and lists under each of these headings the various types of the disease. The signs and symptoms classified by various authors as signs of incipient pulmonary tuberculosis he declares are usually signs of an old abortive form of the disease. These are the cases that "recover" under any treatment, and that have made the reputation of this or that remedy or course of treatment. The absence of fever, of cough, of tachycardia and other symptoms of tuberculous toxic impregnation show that the clinical findings are the relics of an extinct process, not the warning of an incipient new one. He would reserve tuberculin treatment to cases of nonfebrile fibrous or fibro-cheesy tuberculosis, the chronic pseudo-asthmatic bronchial forms, and the post-pleuritic cortical forms. A very slight subfebrile state does not absolutely contraindicate tuberculin treatment, but it should be given with extra caution and suspended if the febrile reaction is marked. In every attempt to give tuberculin, in his experience, when there was persisting temperature of 38 C. or rapid pulse, or low blood pressure, the condition was aggravated by the tuberculin.

88. **Pulmonary Syphilis.**—The young woman presented the clinical picture of chronic pulmonary tuberculosis, with occasional acute or subacute phases, high fever, cough, abundant and sometimes hemorrhagic expectoration, with great prostration. The sputum was constantly free from tubercle bacilli and the Wassermann test was negative, but on account of the absolute failure of the usual treatment for tuberculosis, mercurial treatment was tentatively given. Prompt improvement followed and the Roentgen findings gradually returned to practically normal.

89. **Antimony Oxid in Treatment of Superficial Leishmaniosis.**—Escomel reports experiences which apparently confirm that antimony oxid is fully as effectual in treatment of American leishmaniosis as tartar emetic, if not more effectual, while it does not induce the general reaction nor the local irritating action of the latter. It can be injected under the skin or into a muscle or vein. It does not seem to have any action on blastomycosis.

91. **Salivary Fistulas.**—Jorge gives an illustrated description of three cases of suppuration in the parotid gland with a fistula. The patients were girls of 7 and 8 and a young woman. No benefit was derived from silver nitrate or electric cauterization nor from injection of iodin or hot oil with phenol. But he succeeded in obliterating the fistula by injecting 5, 8 or 10 per cent. solution of formaldehyd, preceded by a subcutaneous injection of atropin. This procedure was repeated on three successive days and the cure was soon complete. It was supplemented by dieting to keep the secretion of saliva down to the minimum. Cases are on record of salivary fistulas of ten, fifteen or twenty years' duration, without complications. Once established they display no tendency to a spontaneous cure, and are often rebellious to the usual methods of treatment. Jorge describes the various surgical measures that have been applied, and reports an operative case from his own practice in which the duct of Steno had been severed by a stab wound.

92. **History of Bubonic Plague.**—Del Pont treats in this instalment the centuries from the eleventh to the sixteenth, inclusive.

93. **Gastric Sarcoma.**—There have been no signs of recurrence during the eighteen months to date in the case here reported in a man of 37. This is said to bring to 180 the operative cases of sarcoma of the stomach on record.

Prensa Medica Argentina, Buenos Aires

May 20, III, No. 35, pp. 377-388

95 *The Miostagmin Reaction in Rats with Malignant Tumors. A. H. Roffo.—p. 377.
96 *Diagnosis of Chronic Pulmonary Tuberculosis. P. M. Barlaro.—p. 381.
97 Activation of Hemolytic Action of Cobra Venom by Spiders' Eggs. B. A. Houssay.—p. 382.
98 Electrocoagulation Treatment of Bladder Tumors. J. Sabatini. —p. 383. Continuation.
99 Acute Abdominal Disease. R. E. Pasman.—p. 384. To be continued.

95. **Miostagmin Reaction in Rats with Sarcomas.**—There was no trace of a miostagmin reaction in twenty-two rats free from tumors, while 93.93 per cent. gave a positive reaction among the thirty-three rats with spindle-cell sarcoma and in 96 per cent. of twenty-five with alveolar carcinomas. In forty-three tests of rats inoculated with the sarcoma, the reaction veered from negative to positive in seven or eight days after the inoculation, while nine days elapsed after inoculation with carcinoma tissue. After excision of the malignant tumors, the miostagmin reaction became negative in every rat except those with recurrence of the cancer (eight out of twenty-six). The findings were constantly negative further in fifty-four rats with natural immunity to cancer, and in twenty-one with acquired immunity. These data are tabulated for ready reference. He has applied the miostagmin test to 490 human serums, and has become convinced that a positive reaction is specific for cancer. He has previously made similar series of clinical and experimental tests with the Freund and Kaminer cellular reaction, the results confirming the specific nature of these biologic reactions, and also confirming the similarity between human and rat cancers.

96. **Diagnosis of Chronic Pulmonary Tuberculosis.**—Barlaro emphasizes that pulmonary tuberculosis is secondary to tuberculous processes in and around adjoining lymph glands. When for some reason the organism as a whole or the lung itself has its resisting powers lowered, then the bacilli swarm into the lung. When they reach the apex the stage is really an advanced stage, and the assumption that the apical process is the primary one is erroneous. The aim should be to diagnose the pulmonary tuberculosis before it reaches the apex. It should be suspected whenever there is a change in the vesicular murmur, especially rough respiration, at any point in the lung, and restricted to this area, with a dry cough, sometimes spasmodic, and, when interrogated, the subjects tell that they tire or get out of breath when they walk or otherwise exert themselves. A skilfully taken radiogram may clear up the diagnosis. Anemia, tachycardia and low blood pressure are the most important signs of toxin production by the tubercle bacilli. The fact that the temperature is normal should never be interpreted as excluding pulmonary tuberculosis. The fixation of complement test may prove instructive.

Semana Medica, Buenos Aires

April 12, XXIV, No. 15, pp. 431-458

100 Drinking Water in the Argentine Navy. H. F. Lista.—p. 435.

April 19, No. 16, pp. 459-486

101 Gastrulation in Mammals. S. E. Parodi and V. Widakowich.—p. 459.
102 Lymphocytosis in Syphilitics. C. P. Mayer and A. C. Gourdy. —p. 465. Continuation.
103 *The Physiopathology of Chronic Nephritis. (Brightismo.) L. J. Facio.—p. 467. Concluded.
104 *Rebellious Hiccup Arrested by Compression of the Eyeballs. (Caso de hipo rebelde.) P. B. Aquino.—p. 483.

103. **Physiopathology of Chronic Nephritis.**—Facio concludes his long study of Bright's disease with the statements that nephritis may exist without symptoms but if it can be detected it is curable in this stage, when the inflammation is restricted to the convoluted tubules. The classification of cases of nephritis by the anatomic localization of the process is an important progress. High blood pressure and an increase in the urea in the blood distinguish vascular uremia. The action of several toxic substances best explains the phenomena of uremia. The share of the internal secretions is not yet well defined, but that they participate is demonstrated beyond question by the biologic reactions, and these mirror the evolution of the nephritis. Chemical examination of the urine is of only secondary importance. He cites some typical cases to illustrate these statements, especially the quantity and the biologic value of the albumin circulating in the blood as factors in production of edema. Study of cases of mercuric chlorid poisoning has thrown much light on the anatomic localization of inflammatory processes and the symptoms induced.

Facio insists that retention of chlorids is not enough, alone, to account for edema. The blood serum has to be in a condition that permits dialysis, and this he thinks occurs when the albumin content of the serum is below normal from any cause. This permits transudation through the capillary wall into the interstices of the tissues. Other causes may cooperate, but reduction in the albumin content of the blood serum is the main factor. As the edema subsides, the albumin content will be found higher, and vice versa. The albumin, he declares, is the regulator and index of the osmotic balance, and the integrity of the liver is indispensable to keep the albumin content normal. As the lung represents the most enormous and ideal dialyzing membrane in the body, any abrupt and considerable change in the osmotic balance is liable to entail intense dialysis here, the dreaded acute edema of the lungs. He cites a few typical cases to show the fatal import of abnormally low albumin content in the blood serum. Two patients with mercuric chlorid poisoning had an albumin content of 0.64 and 0.124 per cent. in the serum and both recovered, although one had anuria for six days. One woman with fatal chronic nephritis had an albumin content always below 0.1 per cent. In conclusion, he urges others to test his assertions as to the importance of the albumin content in the production of edema and as a guide in treatment of chronic nephritis.

104. **Uncontrollable Hiccup Arrested by the Oculocardiac Reflex.**—The young man was completely exhausted by the incessant hiccup which had tormented him for over twenty-four hours. Bromids gave no relief and a dose of morphin only a brief respite. A seidlitz power caused much discomfort but did not arrest the spasms of the diaphragm as hoped. Flexing the thighs on the abdomen to force up the viscera, massage, and rhythmic traction of the tongue also proved futile. But the hiccup stopped at once when the eyeballs were compressed as for the oculocardiac reflex. The radial pulse grew slow, the hiccup stopped, and the exhausted man dropped to sleep at once. A return of the hiccup next day was aborted by the same procedure. It also proved effectual in a case of hiccup from purulent pleurisy.

Siglo Medico, Madrid

May 19, LXIV, No. 3310, pp. 345-364

105 Bone Graft without External Wound to Correct Saddle Nose in Young Woman. E. Botella.—p. 346.
106 *The Present Status of Antiferments in Therapeutics. O. Fernandez.—p. 358. Concluded in No. 3311, p. 376.

May 26, No. 3311, pp. 365-383

107 Hygienic Measures in Treatment of Pulmonary Tuberculosis. L. Calandre.—p. 366. To be continued.
108 Good Blood Goes with Good Muscles. J. G. Ocana.—p. 368.
109 Treatment of Intertrigo. (Las furfuraciones intertriginosas.) Sicilia.—p. 370.

106. **The Antiferments in Therapeutics.**—Fernandez concludes this postgraduate lecture with the remark that the problem of the antiferments is one of pure chemistry. This has been established among other things by the failure of antitrypsic serum as a therapeutic agent, and by the apparently established fact that the relation of the lipolytic index to the antitrypsic is the key to the variations in the tuberculous process. A high lipolytic content seems to be the most reliable expression of the resisting power of the organism in respect to tuberculosis.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 28, I, No. 17, pp. 1337-1432

110 *Epidemic Meningitis in Young Children. R. Korteweg.—p. 1340.
111 White Bread or Whole-Wheat Bread. C. Eijkman.—p. 1352.
112 Life Expectancy in South Africa. (De levensduur, in Zuid Afrika.) C. Pijper.—p. 1358.
113 Favorable Course through Four Years to Date of Dementia Praecox under Antisyphilitic Treatment. J. G. Drossaers.—p. 1363.

110. **Epidemic Meningitis in Young Children and Silent Epidemics in Adults.**—Korteweg is assistant professor of children's diseases at the University of Groningen, and he here compares the percentage of epidemic meningitis at different ages as reported in various countries. The percentage in young children seems to be always higher in lands where physicians have had more experience with this disease and thus recognize it more readily. In the Oppeln epidemic of 2,916 cases in 1905, 71 per cent. were in children under 8; over 25 per cent. were under 2. In the total 225 reported cases in the Netherlands, 1916, only 26 per cent. were in children under 5. Over 31 per cent. occurred between 19 and 29, the army medical officers being skilled in its detection. He emphasizes that children with meningitis do not spread the disease themselves; school epidemics are unknown. It is probable that when a second child in a family contracts the disease, it acquired the infection from some intermediate adult host. Korteweg reported a case last year in which only one of a group of five coccus bearers had been in direct contact with a case of the disease. The coccus bearers form a chain; some of them may lose their cocci as the chain lengthens. This chain of healthy bearers may be called a silent epidemic until it reaches some susceptible person; then the disease flares up. As children are particularly susceptible, they serve as an index of the meningococcus status at the moment. Every case in a child should thus warn of a silent epidemic of bearers.

Differentiation in children is particularly difficult on account of the frequent absence in them of the pathognomonic symptoms. Labial herpes, he says, is never seen in children under 3. In children under 3, Göppert in his hundreds of cases never found stiffness of the back of the neck during the first week in 63 per cent. and even by the fourth week 21 per cent. still showed no sign of it. Progulski in his fifteen cases in infants found no signs of it in the first two weeks. Kernig's sign is scarcely more frequent. An acute onset is also rare in young children, and headache also seems rare and mild; children with epidemic meningitis may sit up in bed and play if only they are left in peace. But they scream at any attempt to take them up or move them. Symptoms of enteritis are also common. When they develop along with general hyperesthesia, meningitis should be suspected, especially if the fontanels are taut. Vomiting is rare in young infants.

Korteweg describes a case in a 7 weeks babe that took the breast well but had been whimpering for three days. There was no vomiting but some diarrhea, and the fontanels bulged. There was no Kernig sign but the child cried when touched, and the throat was slightly red. The fifth day there was a little stiffness at the back of the neck and lumbar puncture revealed meningococci in the fluid. Necropsy the tenth day showed thick pus at the base and in the fourth ventricle. In such cases the retention of consciousness is remarkable. There is little fever but the pulse is accelerated. Sometimes the course resembles fatal hydrocephalus; sometimes it is abortive but lumbar puncture gives the clue. In the Oppeln experience, 89 per cent. died of the 229 infants less than a year old. Even under serotherapy Flexner has reported a mortality of 50 per cent. in infants.

Korteweg planned to make a puncture opening in both the lateral ventricle and lumbar region in a case in which lumbar puncture evacuated only 5 c.c. of very turbid fluid, the communication being evidently interrupted. The child of 8 months had been sick for two weeks before it had been brought to the hospital. Its mother was received along with it, to keep up the breast-milk feeding. He introduced the puncture needle through the coronal suture and at a depth of 5 cm. evacuated 40 c.c. of turbid fluid and injected 10 c.c. of serum in its place. The child opened its eyes afterward and had no further vomiting. The ventricle puncture was repeated eight days in succession. As the condition persisted grave, he then punctured both lateral ventricles and rinsed them out with Ringer's fluid, using 120 c.c. in all. Large quantities of pus were thus cleared out and improvement was manifest as also after repeating the rinsing the next day. The third day no apparent benefit followed and Korteweg refrained from further intervention, the child dying two days later. There had been little hope at any time.

In a second similar case the 6 months babe had been sick for three weeks with fever, but no vomiting or diarrhea, the head thrown backward. Meningococci were then found in the lumbar fluid, and Korteweg left the lumbar puncture needle in place and introduced 30 c.c. of blue tinted Ringer's fluid into the right lateral ventricle, gaging it to correspond to the fluid dripping from the lumbar needle. This fluid soon showed the blue tint. He then injected 10 c.c. of horse antimeningococcus serum into the ventricle. A total of 62 c.c. of fluid was evacuated and 40 c.c. introduced. Toward the end of the procedure the type of the respiration changed, possibly from irritation of the respiration center on the floor of the fourth ventricle under the influence of the phenol in the antiserum. Lumbar puncture followed the next day as the fontanels were bulging. Two days later the ventricle-spinal rinsing was applied again, but the communication was evidently interrupted so he injected 10 c.c. of serum into the spinal canal and withdrew fluid from the ventricle until the pressure was normal. The ventricle was punctured again the next day to relieve the pressure. Improvement was evident, but five days later the temperature ran up, and 35 c.c. still turbid fluid was evacuated by lumbar puncture and 10 c.c. sheep antiserum injected. The next day the ventriculolumbar rinsing was repeated for the last time, and the child was dismissed cured after a month's convalescence. In the two other cases of epidemic meningitis in young children (6 months and nearly 3 years old) the younger died and the other recovered. Three weeks and four weeks had elapsed before the meningitis had been suspected. The symptoms were vomiting, diarrhea and fever, the head bent backward, but no convulsions in one case, and high fever, vomiting and diarrhea in the other. The meningococci in this latter case had probably induced a general sepsis at first and did not localize on the meninges until the end of the month. His five meningitis infant cases were all breast fed. When bottle babies are affected they may succumb to the enteritis before the actual meningitis symptoms manifest themselves.

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114 *Roentgen Treatment of Brain Tumors. S. Nordentoft.—p. 771; O. Gulstad.—p. 775.

114. **Roentgen Treatment of Brain Tumors.**—Nordentoft has now a record of twelve cases of brain tumors in which Roentgen treatment has been applied and he reports complete success in three instances. The improvement was most marked in the better vision. Rapidly developing tumors are more liable to give good results than the more slowly growing. Symptoms from stasis and compression subside as the cause is removed. The loss of hair over the region was not permanent in any instance. The cure has persisted to date, the longest interval being a year and a half. Choked disk retrogressed in some of the cases, in one after it had lasted for three years. He advises a tentative course of treatment as for syphilis before beginning the Roentgen treatment, and urges that the latter should always be tried before attempting an operation. Gulstad reports the details of the twelve cases with the findings on which the diagnosis of a brain tumor was based. Two of the twelve patients proved refractory; necropsy in one showed a very old fibrous tumor. In eight the Roentgen treatment gave favorable results; in three cases earning capacity was restored. It is emphasized that these experiences seem to prove that the Roentgen rays can be applied to the skull without injury to the brain and that the tumors can be modified through the skull wall.